THE EFFECTS OF THE OPPOSITION ON COLLECTIVE AND INDIVIDUAL BEHAVIOURS IN SOCCER: A SYSTEMATIC REVIEW

Victor Reis Machado, João Marcelo Niquini Caríssimo, and Israel Teoldo
Centre of Research and Studies in Soccer (NUPEF) – Universidade Federal de Viçosa, Viçosa, Brazil

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Abstract:

Opposition in soccer is a determining factor for the success of collective and individual actions that are performed by the players to solve the problems of the game. Many studies studied the opposition in official matches and training and its impact on the dimensions of soccer. However, no previous review organised the literature about the effects of the opposition in soccer training. Therefore, this systematic review aimed to verify: i) the effects of the opposition on individual and collective behaviours in soccer training; ii) how was the level of the opposition established during training; and iii) how the variables were analysed and instruments utilized to measure those effects. The PRISMA guidelines were used to search five databases for relevant publications before 10th April 2023. The population was soccer players, and the outcome was any variable related to the tactical, technical, physical, and/or psychological dimension. In the end, there were thirteen studies included. Overall, the main results pointed out two ways to establish the opposition in soccer training: numerical relations and through teams' composition according to players' individual characteristics. Moreover, it is possible to affect soccer's tactical, technical, and physical dimensions by establishing the opposition in different ways. Manipulating the opposition through numerical relationships can facilitate the exchange of passes and maintenance of ball possession, in the offensive phase, and generate greater commitment in attempts to recover possession of the ball in the defensive phase. Regarding the individual characteristics of the players, the effects of the opposition depend mainly on the variable used in organising the teams.

Key words: *football, training sessions, small-sided games, decision-making, tactics*

Introduction

Soccer is dynamic, fluid, and complex (Garganta & Gréhaigne, 1999). It is characterised by the simultaneous existence of cooperation and opposition, which causes at every moment a collective relational dynamics that stimulates players to evaluate game situations and make constant decisions based on actions, reactions, and interactions; the said build the singularity and diversity of the flow of events that allow goals to be scored in the opponent's goal and prevent conceding a goal in one's own goal (Castelo, 1996; Júlio & Araújo, 2005). In this context, according to the theory of dynamic systems, the two teams involved in a match are seen as two interacting systems in motion, in which the quality of the opposition is a determining factor for the success of the interactions and, consequently, for the collective and individual actions that are performed to solve the problems of the game thus allowing the achievement of the main goal (Gréhaigne & Godbout, 2014).

The opposition (namely: level of opposition, quality of opposition, and ability of opposition) in soccer has been primarily studied in official match situations. Such studies define the level of the opposition through the opponent's ranking and employ several methods of performance analysis to understand its effects, separately or in conjunction with other situational factors (e.g., match outcome, match venue, match statistics, etc.), on many variables in the game (Lago-Peñas, 2009; Taylor, Mellalieu, James, & Shearer, 2008; Yi, Gómez, Liu, & Sampaio, 2019). The results of these studies indicate that the opposition has a direct effect on variables related to the tactical (Fernandez-Navarro, Fradua, Zubillaga, & McRobert, 2018), technical (Augusto, et al., 2022), and physical dimensions (Aquino, et al., 2020). Therefore, the opposition plays a central role in the team's performance during official matches and should be considered during the teams' preparation.

Furthermore, the other context in which the opposition has been studied in soccer regards training sessions. In this sense, the level of the opposition is usually a task constraint that can be manipulated in small-sided games (SSG) (Práxedes, Moreno, Gil-Arias, Claver & Del Villar, 2018) and is understood as the level of difficulty presented due to the numerical equality or inequality of the participating teams (Travassos, et al., 2012; Travassos, Vilar, Araújo, & McGarry, 2014). This concept is directly related to the general tactical principles, which are based on the numerical and spatial relationships between teammates and opponents in the ball contention zones (Garganta & Pinto, 1994; Teoldo, Guilherme, & Garganta, 2021). In this regard, it was found that the level of the opposition can impact the tactical (Gonçalves, Marcelino, Torrents, & Sampaio, 2016), technical (Práxedes, Pizzaro, Travassos, Dominguez, & Moreno, 2021), and physical dimensions (Torres-Ronda, et al., 2015) in soccer training. Those results are similar to the findings of studies with official matches, and they must have this congruence once the training process aims to improve the skills and competencies of players and teams to meet the competitive demands required (Teoldoet al., 2021).

While many studies comprise the opposition in a competitive context of soccer (Aquino, et al., 2020; Augusto, et al., 2022; Fernandez-Navarro, et al., 2018), the number of studies that include the opposition in training sessions is much smaller. Even being an intrinsic element to the soccer game, it is commonly manipulated during training (Práxedes, et al., 2018), researchers have dedicated so much effort to studying the manipulation of other parameters like the number of players and field dimensions (Ometto, et al., 2018) instead of the opposition. A possible explanation for this fact may be related to the difficulty of establishing and controlling the opposition in training in an effective way since the same parameter in official matches could be easily associated with the ranking of the opposite team.

Despite the aforementioned importance of the opposition in both contexts (e.g., official matches and training sessions) in soccer, to the best of our knowledge, no previous review has been conducted investigating the influence of the level of the opposition in training sessions in soccer. It is essential to understand how coaches establish and manipulate the opposition to ensure adequate training to generate behaviours that meet the demands imposed by the opponent during the match. In addition, it is necessary to know the variables analysed and instruments utilized to understand how individual and collective behaviours change according to the level of the opposition in this situation. Therefore, this article aims to systematically review the literature to verify: i) the effects of the opposition on individual and collective behaviours in soccer training, ii) how was the level of the opposition established during training sessions; and iii) how were the variables analysed, and what instruments utilized to measure those effects.

Materials and methods

Search strategy and inclusion criteria

A systematic review of the available literature on the effects of the opposition in soccer was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page, et al., 2021). The protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols with the number 202340105 and the DOI number 10.37766/inplasy2023.4.0105. The Population, Intervention, Comparison, Outcome (PICO) framework was adapted and employed to develop the search strategy. The population of interest was soccer players. The intervention was the opposition. No comparison was used because the review sought to investigate what interventions have been carried out on this topic. The outcome was any tactical, technical, physical, or psychological variable.

In order to ensure article quality, five databases were used for the search: 1) Web of Science (all databases); 2) SCOPUS; 3) PubMed; 4) SPORTDiscuss; and 5) Scielo. The search was carried out for relevant publications prior to 10th April 2023. The title, abstract, and keywords were searched through the following descriptors: [(soccer OR football) AND (opposition OR opponent OR "quality of opposition" OR "levels of opposition" OR "situational variables" OR "contextual variables" OR "opposition ability" OR "numerical unbalance" OR "opposing teams") NOT (referee OR injur* OR "american football" OR "australian football" "gaelic football" OR rugby OR volleyball OR basketball OR "robot soccer" OR handball)].

The inclusion criteria for the articles were: 1) published in peer-reviewed scientific journals; 2) the study was carried out with male or female soccer players (either youth or adult); 3) written in the English, Portuguese, or Spanish language. On the other hand, the exclusion criteria were applied if the article: 1) was related to any other sport different from soccer; 2) was a review, opinion, or a conference abstract; and 3) was a study in the context of friendly or official match; 4) was a study classified as having low methodological quality (≤ 50%). In case of any disagreement, it was solved by discussion between the two review authors (VM and JMC).

Two independent reviewers (VM and JMC) separately screened titles and abstracts to identify

articles based on the inclusion criteria. For those articles, full text was screened by those reviewers to establish whether the inclusion criteria were met. Disagreements were solved by discussion between both reviewers.

A backward search was carried out by screening references for those selected articles in databases. Those references that exhaustively matched the inclusion criteria were included in the review.

Extraction of data and quality of the studies

The quality of the studies was assessed with a risk-of-bias quality form (16 items) adapted from Law et al. (1998) and previously used in systematic reviews of sports (Sarmento, Anguera, Pereira, & Araújo, 2018; Sarmento, Clemente, Araújo, Davids, McRoberts, & Figueiredo, 2018; Sarmento, Clemente, Harper, Teoldo, Owen, & Figueiredo., 2018). The items in the form assessed articles based on: objective (item 1); relevance of background literature (item 2); study design (items 3); the sample included (items 4 and 5); informed consent obtention (item 6); outcome measures (items 7 and 8); description of methods (item 9); results significance (item 10); analysis methods (item 11); practical importance (item 12); drop-outs description (item 13); appropriateness of conclusion (item 14); practical implications (item 15); and study limitations (item 16). The assessment for each item was a binary scale (1 – meets the criteria; 0 – does not meet the criteria). The quality of the articles was expressed individually as a final score corresponding to the sum of the scores that met the criteria (1) divided by the total number of scored items (16). Articles were classified based on their final scores as having low methodological quality (≤ 50%); good methodological quality (between 51% and 75%), and excellent methodological quality (> 75%), as used in previous studies (Faber, Bustin, Oosterveld, Elferink-Gemser, & Van der Sanden , 2016; Sarmento, Anguera, et al., 2018; Wierike, Van Der Sluis, Van Der Akker- Scheek, Elferink-Gemser, & Visscher , 2013).

A data extraction sheet was used (adapted from Cochrane Consumers and Communication Review Group's data extraction template). Initially, one of the researchers assessed the studies included in this review, and the second researcher checked the inputted data (VM and JMC). Any disagreement was solved by the consensus between both researchers.

Narrative analysis was used to synthesise and analyse the information collected from each included publication. This approach involved the grouping of studies according to the establishment of the opposition.

Results

Search, selection, and inclusion of publications

Initially, 4507 articles were found in the aforementioned databases. All these articles were exported to the reference software manager (EndNote 20.0). In the next step, all duplicates (n = 1550) were removed manually and automatically. Afterwards, the remaining 2957 articles were screened for relevance based on their title and abstract, resulting in the exclusion of 2825 articles. The remaining 132 articles were eligible to the screen based on their full text, but four were excluded because the full text was not found, resulting in the full-text screening of the remaining 128 articles. There were 115 articles excluded based on the inclusion/exclusion criteria, leaving 13 articles for in-depth reading and analysis. The main reasons for exclusion are described in the flow chart (see Figure 1). Subsequently, a backward search based on the references from those 13 selected articles was performed, but any other article was included for consideration. In total, 13 articles were reviewed in this paper. The chronological analysis of the articles included in this review showed that the selected articles were published between 2015 and 2023. Furthermore, all articles (100%) included in this review were published in the last ten years.

Quality of the studies

Considering the quality of the studies (see Table 1), the main results were: 1) The average score for methodological quality of the thirteen included articles was 83.7%; 2) 11 (84.6%) articles achieved an excellent methodology quality (>75%); 3) two (15.4%) articles achieved a good methodology quality (between 51% and 75%); and 4) the 13 included articles achieved an overall score of > 75% (excellent methodology quality).

Some possible limitations of the 13 selected articles were found, which were related to three items assessed and are further described in order of percentage: 1) item 13 – the totality of studies (n = 13; 100%) did not inform about drop-outs; 2) item 5 – the majority of studies (n = 12; 92.3%) did not justify the sample size; and 3) item 16 – more than a half of the studies (n = 7; 53.8%) did not acknowledge and/or describe the limitations.

Data extraction and synthesis

The characteristics of the thirteen studies included in this systematic review are presented in Table 1. Overall, the effects of the opposition on collective and individual behaviours in soccer training were verified in all thirteen studies (100%). Additionally, according to the aims of this study and

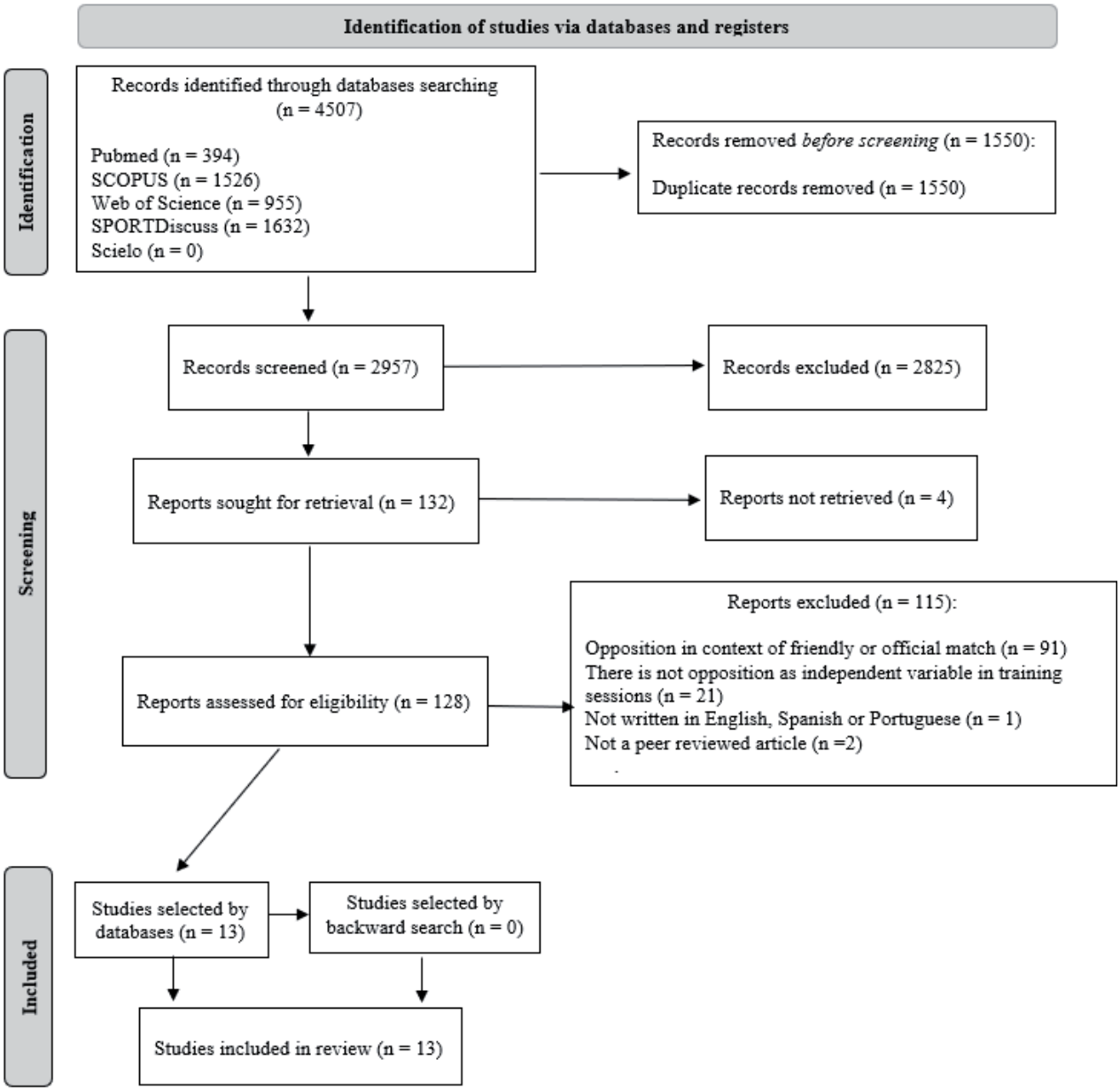

Figure 1. Flow chart of the methodology used for the article search based on the preferred reporting items for systematic review (PRISMA).

for a better understanding of the data, the results will be presented separately according to the establishment of the opposition and the measurements realised.

Opposition establishment

In terms of the establishment of the opposition in the thirteen studies, the great majority used numerical relations (numerical superiority/inferiority) (n = 10), followed by teams' composition according to players' individual characteristics (n = 3). Regarding players' individual characteristics, all studies (n = 3) have used different characteristics: creative behaviour (n = 1), procedural tactical knowledge (n = 1), and experts' subjective evaluation (n = 1).

Measurements

The thirteen studies included in this review have analysed three of the four possible dimensions of soccer: the majority (n = 10) have assessed the tactical dimension, followed by the physical (n = 7) and finally, the technical (n = 4). None of the studies have assessed the psychological dimension.

Regarding the tactical dimension (n = 10), which was the most frequently studied, it was found that the majority of the articles analysed this dimension in conjunction with the physical (n = 4), followed by the analysis of the technical dimension (n = 3) and just the tactical dimension separately (n = 3). Concerning the variables related to the tactical dimension, it was found that a significant number of studies (n = 5) has used individual tactical behav-

Table 1. Studies that investigated the effects of opposition in soccer

Article Information		Aim	Participants Information	Game Information		Opposition establishment	Measurements			Main Evidence
Authors (Year)	Quality			Game Format	Pitch Dimensions		Soccer dimension assessed	Variables	Instruments	
Santos *et al.* (2023)	87.50	The purpose of this study is to identify the creative and tactical effects of playing against a varying number of creative opponents (1C, 2C, 2C and 4C) of different age groups (U9, U11 and U13) during youth football Small-sided games.	60 male young players (20 U9, 20 U11 and 20 U13)	• GK + 4 x 4 + GK	• 40 x 30	Number of creative players according to Creative Behaviour Assessment in Team Sports (CBATS) (Santos *et al.*, 2017)	• Tactical	Tactical behaviours: spartial exploration index, distance to team centroid (absolute value, coefficient of variation and approximate entropy), and distance to opponent centroid (absolute value, coefficient of variation and approximate entropy)	GPS (SPI-PRO, GPSports, Canberra, ACT, Australia)	The results showed that U9 players increased the individual space explored when facing more creative opponents, while U11 and U13 only increased when facing 2C and 3C. Playing against more creative opponents induced more variability in the distance to own and the opponent team's centroid in U9, regularity in U11 and lower regularity in U13. From the creative behaviour analysis, statistically significant differences were found in the creative behaviour scores of U9 players, with higher values against 1C than for the remaining conditions primarily when compared with 4C. These results indicate that this age group is more sensitive to changes in the opposing team from the creative behaviour perspective
Práxedes *et al.* (2022)	87.50	The main purpose of this study was to understand the effect of the use of a task of numerical superiority in attack (5 x 4) before a task of equal number of player in comparison with the use of only two numerical equality (5 x 5) tasks. A second objective was to examine this effect according to the game principles: keep the ball possession and progress to the goal.	20 male young players (U14)	• 5 x 4 • 5 x 5	• 40 x 25	Numerical Relation	• Tactical • Technical	Decision-making (pass and dribbling actions), number of ball touches and the duration of ball possession	Game Performance Evaluation Tool (GPET) (García-López *et al.*, 2013) and Notational Analysis	Results show a tendency to decrease the offensive performance in the sequence (Numerical superiority + Numerical equality). However, if we compare both initial situations, significant higher values were observed in the situation with numerical superiority. In addition, regarding the two final situations, there are hardly any differences between them.
Nunes *et al.* (2021)	75.00	This study aimed to examine the effects of age group (U11, U15, and U23) on the external, internal workloads, and tactical individual actions when playing 4 x 2, 4 x 4, and 4 x 6 ball possession small-sided soccer games.	52 male young and amateur players (16 U11, 18 U15, and 18 U23)	• 4 x 2 • 4 x 4 • 4 x 6	• 30 x 25	Numerical Relation	• Tactical • Physical	External workload: total distance covered (m), distance differentiated by walking (≤9 km/h), running (9–18 km/h) and sprinting (>18 km/h), number of sprints (n), maximum sprint speed (km/h); Internal workload; and tactical individual actions: number of passing with the dominant and non-dominant foot (n), and maximum passing speed (km/h)	GPS (ZEPP Play Soccer system, ZEPP Labs, San Jose, United States) and RPE Borg Scale CR10 (Borg, 1982)	From an opposition-based perspective, older age groups covered longer distances while walking and perceived the task as more intense for all game formats, whereas the younger age groups did this while sprinting. The 4 x 2 promoted more passes and the 4 x 6 constrained speed of ball circulation for U11.
Nunes *et al.* (2021)	87.50	The aim of this study was to evaluate the effects of the unbalanced number of players (4 x 3, 4 x 4 and 4 x 5) in ball possession SSGs on U23 football players' performance, in three different playing areas (small: 20x15, medium: 25 x 20, and large: 30 x 25), under perspectives of opposition and cooperation.	23 male amateur players (U23)	• 4 x 3 • 4 x 4 • 4 x 5	• 20 x 15 • 25 x 20 • 30 x 25	Numerical Relation	• Tactical • Physical	External workload: total distance covered (m), distance differentiated by walking (≤9 km/h), running (9–18 km/h) and sprinting (>18 km/h), number of sprints (n), maximum sprint speed (km/h); Internal workload; and tactical individual actions: number of passing with the dominant and non-dominant foot (n), and maximum passing speed (km/h)	GPS (ZEPP Play Soccer system, ZEPP Labs, San Jose, United States) and RPE Borg Scale CR10 (Borg, 1982)	From an opposition-based perspective, the higher the number of players involved in the task, the more significant differences are found in terms of external load. In terms of space manipulation, it is well reported that playing area dimensions influence the intensity of the game, the actions of the players and the energy systems used with large playing areas associated with an increase in the intensity of exercise. Furthermore, this improvement in the physical demands was more evident when playing against a higher number of opponents (4 x 5).

Table 1. (continued)

Article Information		Aim	Participants Information	Game Information		Opposition establishment	Measurements			Main Evidence
Authors (Year)	Quality			Game Format	Pitch Dimensions		Soccer dimension assessed	Variables	Instruments	
Nunes *et al.* (2020)	87.50	This study aimed to explore the effects of playing different unbalanced ball possession small-sided games on external workload (distance covered while walking, running, and sprinting, and max speed), tactical individual actions (number of passes with dominant and non-dominant foot), and internal load (rating of perceived exertion, RPE) in U23 soccer players.	20 male amateur players (U23)	• 4 x 2 • 4 x 3 • 4 x 4 • 4 x 5 • 4 x 6	• 30 x 25	Numerical Relation	• Tactical • Physical	External workload: total distance covered (m), distance differentiated by walking (≤9 km/h), running (9–18 km/h) and sprinting (>18 km/h), number of sprints (n), maximum sprint speed (km/h); Internal workload; and tactical individual actions: number of passing with the dominant and non-dominant foot (n), and maximum passing speed (km/h)	GPS (ZEPP Play Soccer system, ZEPP Labs, San Jose, United States) and RPE Borg Scale CR10 (Borg, 1982)	From an opposition-based perspective, 4 x 2 and 4 x 3 conditions allow players to walk more, while 4 x 6 causes players to sprint longer distances. Player behavior adapts to the number of players involved during small-sided games: when players are in numerical superiority, they can use the available space and the team's playing area dispersion to facilitate ball possession; on the other hand, when players are in numerical inferiority, they need to increase intensity levels and perform in coordination with their teammates to recover ball possession.
Ibáñez *et al.* (2020)	87.50	The purposes of this study were to identify which major constraints contribute to greater task workload and to determine distinctive training task profiles using an integrative approach during a regular season from a professional women's soccer team.	27 female professional players (Adult)	-	-	Numerical Relation	• Physical	Total Task Workload	SIATE (Sistema Integral para el Análisis de las Tareas de Entrenamiento) integrative tool assessment (Ibáñez et al., 2016); HR telemetric systems Suunto Team Manager 2.1.2® and Suunto Team Monitor 2.1.1® and Yo-Yo Intermittent Recovery Test Level 1 (Krustrup et al., 2005)	Task constraints contribute differently to the total workload in professional women's soccer team. The constraints that most affected the total task workload were the interaction possibilities, competitive workload, opposition degree and simultaneous participation.
Práxedes *et al.* (2018)	87.50	The objective of this study was to analyze the effect of two teaching programs, each utilizing modified games with varied levels of opposition, on decision-making and action execution in young players with different levels of sports expertise.	19 male young players (U12:10 average level skill players, and 9 low level skill players)	• 3 x 2 • 3 x 3 • 4 x 3 • 4 x 4 • 5 x 4 • 5 x 5	• 30 x 15 • 35 x 20 • 40 x 25	Numerical Relation	• Tactical • Technical	Decision-making (successful decision/decisions made) and execution (% successful execution/executions made) of the passes	Game Performance Evaluation Tool (GPET) (García-López et al., 2013)	For average level players: the numerical superiority program has improved decision-making and skill execution. For low level players: only the skill execution. For both groups: the numerical equality program has not improved anything.
Torrents *et al.* (2016)	81.25	The aim of this study was to examine how the constraints such as number of opponents and teammates affect the technical, tactical, and exploratory behavior in small-sided games, in both professional and amateur players.	44 male adult players (22 professionals and 22 amateurs)	• GK + 4 x 3 + GK • GK + 4 x 5 + GK • GK + 4 x 7 + GK	• 40 x 30	Numerical Relation	• Tactical • Technical	Tactical/Technical actions: attacker with the ball (run to the ball, wait, control, pass, shoot, protect, drive, feint, dribble, intercept, deflect, clear, anticipate); attackers without the ball (wait, support, unmark); and defenders (press, delay, dissuade, balance, withdraw)	Observational instrument based on (Owen *et al* ., 2014; and Teoldo *et al.*, 2011)	An increase in the number of opponents produced an increase of the frequency of defensive patterns and, especially, an increase in the number of players controlling and a decrease in the number of players waiting. In addition, an increase in the number of opponents also produced a decrease in the use of basic actions such as passing or driving by players in possession of the ball. In terms of the emergence of flexible and fluent behavior, players seem to show more exploratory behavior when playing with a numerical disadvantage. The effect of the three small-sided games formats seems to be similar for both amateur and professional players.
Ric *et al* . (2016)	87.50	The aim of this study was to identify the dynamics of tactical behaviour emerging on different timescales in football small-sided games and to quantify short- and long-term exploratory behaviour according to the number of opponents.	80 male professional players (Adult)	• 4 x 3 • 4 x 5 • 4 x 7	• 40 x 30	Numerical Relation	• Tactical	Tactical behaviours (tactical core principles, inter-player contexts, pitch zones and movement speeds) related to timescale: <qstat>, Entropy, Trapping strength	Observational instrument based on (Teoldo *et al.* , 2011; Clemente *et al.* , 2014; and Folgado *et al.* , 2014) and GPS (SPI ProX, GPSports, Canberra, ACT, Australia)	The tactical diversity of the players decreased with the increase in the number of opponents, mainly in defense. Manipulating numerical imbalance will likely promote changes in the diversity, unpredictability, and flexibility of tactical solutions. The fact that the temporally nested structure of constraints shaped the emergence of tactical behavior provides new justification for the design of practical tasks. Manipulating numerical imbalance on the time scale of a few tens of seconds, where players' exploratory behavior saturates, can help coaches optimize the exploratory efficiency of reduced games.

Table 1. (continued)

Article Information		Aim	Participants Information	Game Information		Opposition establishment	Measurements			Main Evidence
Authors (Year)	Quality			Game Format	Pitch Dimensions		Soccer dimension assessed	Variables	Instruments	
Praça *et al.* (2016)	81.25	This study aims to analyze the influence of opponents' changes on the tactical and physical behavior of soccer players during small-sided games.	18 male young players (U17)	• GK + 3 x 3 + GK	• 36 x 27	Procedural Tactical Knowledge according to Teste de Conhecimento Tático Processual (TCTP OE) (Greco *et al.* , 2014)	• Tactical • Physical	Physical demands: Total distance and distances covered by speed zones (total distance covered between 0 and 7.2 km/h, total distance covered between 7.3 and 14.3 km/h, total distance covered between 14.4, and 21.5 Km/h). Accelerations (total acceleration actions from 2 m/s², total distance traveled in accelerations from 2 m/s², total acceleration actions from 2.5 m/s², Total distance traveled in accelerations from 2.5 m/s). Tactical behavior (width, depth, distance between centroids and length per width ratio)	GPS: (SPI Pro, GPSports, Canberra, Australia)	In general, no differences were observed in tactical behavior from changing the opposing teams and few differences were observed on physical demand during small-sided games was reported (only in Total distance covered between 0 and 7.2 km/h and in Total acceleration actions from 2 m/s²).
Gonçalves *et al.* (2016)	81.25	This study is aimed to compare the player positioning dynamics when manipulating the number of opponents and teammates during football small-sided games played by professional and amateur players.	44 male adult players (22 professionals and 22 amateurs)	• 4 x 3 • 4 x 5 • 4 x 7	• 40 x 30	Numerical Relation	• Tactical	Positional variables: effective playing space, distance to centroid (absolut values and approximate entropy), distance to opponent centroid (absolut values and approximate entropy) and distance do nearest opponent (absolut values and approximate entropy)	GPS: (SPI-Pro, GPSports, Canberra, ACT, Australia)	Outcomes suggested that increasing the number of opponents in professional teams resulted in moderate/large decrease in approximate entropy values to both distance to team and opponent team centroid (i.e., the variables present higher regularity/predictability pattern). Increasing the number of opponents was effective to overemphasise the need to use local information in the positioning decision-making process from professionals. Conversely, amateur still rely on external informational feedback.
Torres-Ronda *et al.* (2015)	81.25	The purpose of this study was to determine the internal (heart rate) and external load (body load, distance covered, and exertion index) during different types of unbalanced soccer small-sided games in professional and amateur players.	44 male adult players (22 professionals and 22 amateurs)	• 4 x 3 • 4 x 5 • 4 x 7	• 40 x 30	Numerical Relation	• Physical	Total distance covered, Exertion Index, Body load, Modified trainning impulse and RPE	GPS: (SPI-ProX, GPSports, Canberra, Australia), Heart-rate monitor (1 Hz, Polar Team Sports System, Polar Electro Oy, Finland) and CR10 Borg Scale (Borg, 1982)	Results reveal that the higher the number of players involved in the task, the lower the internal and external workload. The analysis also showed different teammates and opposition related trends that need to be considered when planning and monitoring training performance. Playing in low-inferiority (4 x 3, and 4 x 5) had a higher physiological impact on players than the other higher unbalanced situations. This evidence was similar to both professional and amateur players; however, the professional presented higher physical and lower physiological responses across games.
Hulka *et al.* (2015)	75.00	The purpose of this work is to determine the influence of opponents of different levels on internal response and external load during a 4x4 soccer game.	20 male amateur players (U23)	• GK + 4 x 4 + GK	• 40 x 20	Experts' subjective evaluation	• Physical • Technical	Physical: Heart-rate (average, <75% and 85-90), RPE and distance covered; Technical demands (passes, pass accuracy, shots on goal, steals and turnovers)	TEAM PolarPro System (Kepele, Finland), Observational Tool (Video Manual Motion Tracker 1.0 (Hulka *et al.* , 2014), and RPE Borg Scale CR10 (Borg, 1982)	The results showed significantly lower average heart rate achieved by higher level teams in the 4x4 game against lower level opponents compared to against higher level teams. Then lower level teams reached significantly higher average heart rate in the 4x4 game against higher level teams than in mutual lower level team 4 x 4 game. We found out significantly higher distance covered by lower level teams in 4 x 4 game against higher level teams than in lower level teams mutual 4 x 4 game.

Note. xC : x creative players (e.g., 1 creative player, etc.); Ux : under x (e.g., Under 9; Under 17; etc.); GK : goalkeeper; m : metre; km/h : kilometre per hour; % successful execution/executions made: percentage of successful execution and executions made; n : number; m/s² : metre per second squared; m/s : metre per second; RPE : ratings of perceived exertion; GPS : global positioning system.

iours (such as tactical core principles and decision-making), followed by the combination of individual and collective tactical behaviours (such as positional variables) (n = 4) and the isolated collective tactical behaviours (n = 1). The instruments employed to assess those variables were Global Positioning System (GPS) (n = 6), observational instruments (n = 3), and a combination of both (n = 1).

In terms of the physical dimension (n = 7), it was found that this dimension was most frequently analysed in addition to the tactical (n = 4), followed by the isolated analysis (n = 2) and jointly the technical (n = 1). Regarding the variables related to the physical dimension, the more significant part of the studies has focused on the combination of external workload (such as total distance covered and total distance covered per speed zones) and internal workload (such as ratings of perceived exertion and heart rate) (n = 4), followed by isolated internal workload (n = 2) and finally the isolated external workload (n = 1). The instruments used in this analysis were: GPS (n = 5), RPE Borg Scale (n = 5), and heart-rate monitors (n = 3).

Concerning the technical dimension (n = 4), it was found that a more significant number of studies have analysed it in addition to the tactical dimension (n = 3) followed with the physical dimension in conjunction (n = 1). None of the studies had studied the technical dimension in the isolated form. In terms of analysed variables, half of the studies (n = 2) have analysed just offensive techniques (such as passes and the number of ball touches), and the other half (n = 2) has analysed both offensive and defensive (such as steals and interceptions) techniques. The instruments used in all analyses were observational (n = 4).

Discussion and conclusions

This article aimed to systematically review the literature to verify: i) the effects of the opposition on individual and collective behaviours in soccer training, ii) how was the level of the opposition established during training sessions, and iii) how the variables were analysed and what instruments were utilized to measure those effects. In general, it was found that the opposition affected collective and individual behaviours in soccer training. This result is supported by the main findings of all thirteen studies included in this systematic review. In this sense, as the effects of the opposition are influenced by how the opposition was established, the studies were grouped according to the opposition establishment to highlight and discuss the evidence. Finally, discussion was made about how the opposition establishment meets or does not meet the demands of soccer training.

Numerical relations

The studies carried out with the opposition established by numerical relations were the majority included in this systematic review (n = 10), and all of them presented some effect of the opposition on one or more dimensions of the game (namely: tactical, technical, and/or physical). Overall, the findings presented in these studies pointed out that small-sided games played with lower levels of the opposition (numerical superiority) can be used to improve the decision-making and skill execution of the players (Práxedes, et al., 2018), provided a better offensive performance with higher passing frequency and greater ease in keeping ball possession (Nunes, Gonçalves, Roca, & Travassos, 2021; Práxedes, et al., 2021), and resulted in lower physical demands with more covered distances in lower velocity zones (Nunes, Gonçalves, Coutinho, & Travassos, 2020).

One explanation for the results with lower levels of the opposition is that when a team plays in numerical superiority, the players have more time and space to make their decisions and to execute their technical gestures, favouring the development of both decision-making and execution skills, mainly in the average and young players (Práxedes, et al., 2018). Moreover, in numerical superiority, the team generates more uncovered passing lines, which results in a better offensive performance in terms of the number of passes and maintaining the ball possession (Nunes, et al., 2021; Práxedes, et al., 2021). Lastly, due to more time, space, and uncovered passing lines, the players do not need to reach high velocities to generate the passing lines and keep the ball; then, they have more distances covered at lower velocities (Nunes, et al., 2020).

In relation to the training sessions using small-sided games with higher levels of the opposition (numerical inferiority), it was found that the players spent more time in the defensive phase and were more active in trying to recover the ball (Torrents, et al., 2016). Moreover, the players also had higher physiological impacts (Torres-Ronda, et al., 2015). When the team plays in situations of numerical inferiority, it is harder to keep ball possession because the opponent can close out the available space and recover the ball more efficiently, thus it is customary to spend more time in the defensive phase (Torrents, et al., 2016). Since the goal of both teams is the same and is usually fulfilled when in possession of the ball (e.g., keep possession, score a goal), the players on defence have to become more active in trying to regain possession (Torrents, et al., 2016). The physical effort to recover the ball and meet the game objective by compensating for the absence of one or more players, especially in spatial terms having to move more and more quickly to cover the same space, results in greater physiological impact (Torres-Ronda, et al., 2015).

These findings suggest that training with different levels of the opposition affected individual and collective behaviours in soccer players when the opposition is established through numerical relation (Gonçalves, et al., 2016; Ric, et al., 2016). Furthermore, the level of the opposition is a significant factor contributing to the total task load (Ibáñez, Pérez-Goye, García-Rubio, & Courel-Ibáñez, 2020). Thus, it is crucial to understand the effects of this manipulation to better design training sessions according to the aims.

Teams' composition according to players' individual characteristics

In addition to the numerical relations, another way to establish the opposition found in the literature was teams' composition according to players' individual characteristics, which included three studies in this systematic review. In this sense, the three studies have used different parameters to establish the opposition (Hůlka, Weisser, Bělka, & Háp, 2015; Praça, et al., 2016; Santos, Coutinho, Gonçalves, & Sampaio, 2023).

A study by Hůlka and colleagues (2015), which established the opposition through the experts' subjective evaluation, found that lower-level teams achieved higher heart rates and covered longer distance when facing higher-level opponents in 4-a-side SSG. Additionally, higher-level teams reached higher heart rates playing against higher-level opponents than their lower-level counterparts. These results are in accordance with the results from studies using numerical relations, which found that higher levels of the opposition results in superior physiological impacts (Nunes, et al., 2020), even using different parameters to establish the opposition. A possible explanation for these facts could be that higher-level teams displayed superior tactical and technical capacities when evaluated by the experts and converted this superiority by imposing difficulties on the lower-level teams, resulting in higher physical demands (Hůlka, et al., 2015).

On the other hand, a study conducted by Praça and colleagues (2016), which established the opposition through the procedural tactical knowledge (PTK) (Greco, Campos Aburachid, Da Silva, & Perez Morales, 2014) in 3-a-side games found that teams facing similar levels of the opposition (e.g., lower-level team x lower-level team and higher-level team x higher level team) presented no differences in collective tactical behaviours and just slight differences in physical demands. Therefore, the fact that the teams had similar tactical levels, according to the PTK, could explain the results of collective tactical behaviours (Praça, et al., 2016). On the other hand, the slight differences in physical demands may be related to the fact that, in this study, the players' physical capacities were not controlled when the teams were divided (Praça, et al., 2016). These results partially agree with the results of Hůlka and colleagues (2015), that pointed out no significant differences in physical demands in games with teams of similar levels, especially lower-level teams facing lower-level opponents.

Finally, a study by Santos and colleagues (2023) aimed to identify the creative and tactical effects of playing against a varying number of creative opponents (from one to 4 creative players) of different age groups (U9, U11, and U13) during 4-a-side SSG. The players' creative behaviour score was assessed using the Creative Behaviour Assessment in Team Sports (CBATS) (Santos, Jimeénez, Sampaio, & Leite, 2017). In general, all categories were affected by the changes in opposing teams from a creative perspective in terms of collective tactical behaviour and creative behaviour (Santos, et al., 2023). Additionally, the players that were more sensitive to these changes were the younger ones (U9) (Santos, et al., 2023). A possible explanation for these findings is that adding more creative players to the opponent team demanded different solutions to the game problems, resulting in a change of collective tactical behaviour and even creative behaviour from the average players (Santos, et al., 2023).

Overall, these results suggest that it is possible to manipulate the levels of the opposition through experts' subjective evaluation to affect physical demands (Hůlka, et al., 2015) and that manipulating levels of the opposition through the creative perspective affected the collective tactical behaviours of young soccer players during training (Santos, et al., 2023). However, using PTK to establish the opposition does not affect collective tactical behaviours and only has minor effects on physical demands (Praça, et al., 2016).

Opposition establishment

As previously mentioned, the opposition establishment is primordial to the studies' findings in this systematic review. Consequently, it is essential to go beyond the discussion of the results themselves by presenting the discussion of the ways of establishing the opposition and exploring their vantages and disadvantages to seek progress in the scientific area and in the practice of soccer training.

In this sense, the opposition level established through numerical relation is directly related to the general tactical principles, which received this name because they are common to the different phases of play and the other categories of principles (Teoldo, Silva, Greco, & Mesquita, 2009). The tactical principles aim to help the players understand the game's logic and solve the game's problems (Teoldo, et al., 2021; Teoldo, et al., 2009). Therefore, it is important to base training processes in soccer, especially tactical training, on tactical principles. Furthermore, tactical training through tactical principles

advocates that teaching focused on general tactical principles be carried out until around eight years old (Teoldo, et al., 2021). Thus, the establishment of the opposition in players older than eight only through numerical relations may be limited, and it is necessary to consider other game factors, such as the players' individual characteristics.

Concerning the teams' composition according to players' individual characteristics, three studies included in this systematic review presented three different parameters used for the opposition establishment (Hůlka, et al., 2015; Praça, et al., 2016; Santos, et al., 2023). PTK appears unsuitable since it provokes only a few changes in physical demands (Praça, et al., 2016). Otherwise, creative behaviour could be an excellent variable to provoke changes in collective tactical behaviour and in the creative behaviour itself when used in addition to numerical relation (Santos, et al., 2023). Still related to creativity, a limitation of the instrument used to assess creative behaviour is that it only assessed creativity with the ball (Santos, et al., 2023, 2017). Then, it could be a problem during training sessions using SSG with many players because they will probably spend more time without ball possession when their creative behaviour with the ball has less impact. Lastly, the experts' subjective evaluation could be helpful and be used to alter physical demands (Hůlka, et al., 2015). The problem with this kind of subjective evaluation is that it could not correspond to the actual capabilities of the player (Daga, Veglio, Cherasco, & Agostino, 2023; Dugdale, Sanders, Myers, Williams, & Hunter, 2020), even more so in contexts of homogeneous conditions (Dugdale, et al., 2020).

Therefore, the suggestion for future studies and people involved with the training of soccer is to establish the opposition levels through reliable and validated instruments using parameters that are related to all dimensions of the game (namely: tactical, technical, physical, and psychological), such as the decision-making (Teoldo, Cardoso, & Machado, 2021). Furthermore, these parameters must be in accordance with the age and level of expertise of the players involved. Another suggestion regards the inclusion of psychological variables in the studies since psychological parameters are very relevant to sports performance (Fawver, et al., 2020; Wachsmuth, Feichtinger, Bartley, & Höner, 2024) and could give a broad perspective of the opponents. Finally, concerning the methodological aspects, including sample size justification would allow other researchers to know how possible it is to transfer the results found in that sample to other populations (Lakens, 2022). Furthermore, adding the dropout reporting could also enhance the evidence found and further contribute to the scientific advancement of the area.

This study was the first to scope peer-reviewed literature on: i) the effects of the the opposition on individual and collective behaviours in soccer training, ii) how was the level of the opposition established during training sessions, and iii) how the variables were analysed and what instruments were utilized to measure those effects. However, some limitations, like the data collection up to the 10th April 2023, could have influenced the results regarding the lack of more recent research. Our findings suggest that there are two ways in the literature to establish levels of the opposition: numerical relations and through teams' composition according to players' individual characteristics. Moreover, according to the results discussed in this systematic review, manipulating levels of the opposition through numerical relations and players' characteristics affects tactical, technical, and physical dimensions during soccer training. Manipulating the opposition through numerical relationships can facilitate the exchange of passes and maintenance of ball possession, in the offensive phase, and generate greater commitment in attempts to recover possession of the ball in the defensive phase. Regarding the individual characteristics of the players, the effects of the opposition depend mainly on the variable used in organising the teams. Therefore, it is important to know these effects and how it could be possible to manipulate the opposition levels according to the aims of the training, besides the age and level of expertise of the players.

References

Aquino, R., Carling, C., Palucci Vieira, L.H., Martins, G., Jabor, G., Machado, J., Santiago, P., Garganta, J., & Puggina, E. (2020). Influence of situational variables, team formation, and playing position on match running performance and social network analysis in Brazilian professional soccer players. *Journal of Strength and Conditioning Research*, *34*(3), 808-817. https://doi.org/10.1519/JSC.0000000000002725

Augusto, D., Oliveira, L.A., Aquino, R., Fernandes, I., Bezerra Almeida, M., & Vasconcellos, F. (2022). Within-subject variation of technical performance in elite Brazilian professional soccer players: The environmental stress, match location, and opposition's ranking influences. *International Journal of Performance Analysis in Sport*, *22*(4), 583-593. https://doi.org/10.1080/24748668.2022.2097835

Castelo, J. (1996). *Futebol a organização do jogo: Como entender a organização dinâmica de uma equipe de futebol e a partir desta compreensão como melhorar o rendimento e a direção dos jogadores e da equipa.* [Soccer the organization of the game: How to understand the dynamic organization of a soccer team and from this understanding how to improve the performance and direction of the players and the team]. Lisboa: FMH Edições.

Daga, F.A., Veglio, F., Cherasco, G.M., & Agostino, S. (2023). The influence of subjective perceptions and the efficacy of objective evaluation in soccer school players' classification: A cross-sectional study. *Children*, *10*(5), 767-779. https://doi.org/10.3390/children10050767

Dugdale, J.H., Sanders, D., Myers, T., Williams, A.M., & Hunter, A.M. (2020). A case study comparison of objective and subjective evaluation methods of physical qualities in youth soccer players. *Journal of Sports Sciences*, *38*(11-12), 1304-1312. https://doi.org/10.1080/02640414.2020.1766177

Faber, I.R., Bustin, P.M.J., Oosterveld, F.G.J., Elferink-Gemser, M.T., & Nijhuis-Van der Sanden, M.W.G. (2016). Assessing personal talent determinants in young racquet sport players: A systematic review. *Journal of Sports Sciences*, *34*(5), 395-410. https://doi.org/10.1080/02640414.2015.1061201

Fawver, B., Cowan, R L., DeCouto, B S., Lohse, K R., Podlog, L., & Williams, A M. (2020). Psychological characteristics, sport engagement, and performance in alpine skiers. *Psychology of Sport and Exercise*, *47*, 101616. https://doi.org/10.1016/j.psychsport.2019.101616

Fernandez-Navarro, J., Fradua, L., Zubillaga, A., & McRobert, A.P. (2018). Influence of contextual variables on styles of play in soccer. *International Journal of Performance Analysis in Sport*, *18*(3), 423-436. https://doi.org/10.1080/24748668.2018.1479925

Garganta, J., & Gréhaigne, J.F. (1999). Abordagem sistêmica do jogo de futebol: Moda ou necessidade? [Systemic approach to the game of soccer: Fashion or necessity?] *Movimento*, *5*(10), 40-50. https://doi.org/10.22456/1982-8918.2457

Garganta, J., & Pinto, J. (1994). O ensino do futebol. [The teaching of soccer game.] In A. Graça & J. Oliveira (Eds.), *O ensino dos jogos desportivos [The teaching of sportive games]* (pp. 95-136). Faculdade de Ciências do Desporto e de Educação Física da Universidade do Porto: Rainho & Neves Lda.

Gonçalves, B., Marcelino, R., Torres-Ronda, L., Torrents, C., & Sampaio, J. (2016). Effects of emphasising opposition and cooperation on collective movement behaviour during football small-sided games. *Journal of Sports Sciences*, *34*(14), 1346-1354. https://doi.org/10.1080/02640414.2016.1143111

Greco, P., Campos Aburachid, L., Da Silva, S., & Perez Morales, J. (2014). Validação de conteúdo de ações tático-técnicas do Teste de Conhecimento Tático Processual – Orientação Esportiva. [Content validation of tactical-technical actions in the Tactical Procedural Knowledge Test—Sports Orientation.]. *Motricidade*, *10*(1). https://doi.org/10.6063/motricidade.10(1).2124

Gréhaigne, J.-F., & Godbout, P. (2014). Dynamic systems theory and team sport coaching. *Quest*, *66*(1), 96-116. https://doi.org/10.1080/00336297.2013.814577

Hůlka, K., Weisser, R., Bělka, J., & Háp, P. (2015). The influence of different level of opponents on internal responses and external loads during small-sided games in soccer. *Acta Gymnica*, *45*(3), 113-119. https://doi.org/10.5507/ag.2015.017

Ibáñez, S.J., Pérez-Goye, E., García-Rubio, J., & Courel-Ibáñez, J. (2020). Effects of task constraints on training workload in elite women's soccer. *International Journal of Sports Science and Coaching*, *15*(1), 99-107. https://doi.org/10.1177/1747954119891158

Júlio, L., & Araújo, D. (2005). Abordagem dinâmica da acção táctica no jogo de futebol. [A dynamic approach to tactical action in the game of soccer.] In D. Araújo (Ed.), *O contexto na decisão: A ação tática no desporto [Context in decision-making: Tactical action in sport]* (pp. 159-177). Lisboa: Visão e Contextos Lda.

Lago-Peñas, C. (2009). The influence of match location, quality of opposition, and match status on possession strategies in professional association football. *Journal of Sports Sciences*, *27*(13), 1463-1469. https://doi.org/10.1080/02640410903131681

Lakens, D. (2022). Sample size justification. *Collabra: Psychology, 8*(1), 33267. https://doi.org/10.1525/collabra.33267

Law, M., Stewart, D., Pollock, N., Letts, L., Bosch, J., & Westmorland, M. (1998). *Critical review form: Quantitative studies*. Hamilton: McMaster University.

Nunes, N., Gonçalves, B., Coutinho, D., & Travassos, B. (2020). How numerical unbalance constraints physical and tactical individual demands of ball possession small-sided soccer games. *Frontiers in Psychology*, *11*, 1464. https://doi.org/10.3389/fpsyg.2020.01464

Nunes, N., Gonçalves, B., Roca, A., & Travassos, B. (2021). Effects of numerical unbalance constraints on workload and tactical individual actions during ball possession small-sided soccer games across different age groups. *International Journal of Performance Analysis in Sport*, *21*(3), 396-408. https://doi.org/10.1080/24748668.2021.1903249

Ometto, L., Vasconcellos, F.V., Cunha, F.A., Teoldo, I., Souza, C.R.B., Dutra, M.B., ..., & Davids, K. (2018). How manipulating task constraints in small-sided and conditioned games shapes emergence of individual and collective tactical behaviours in football: A systematic review. *International Journal of Sports Science and Coaching*, *13*(6), 1200-1214. https://doi.org/10.1177/1747954118769183

Page, M., McKenzie, J., Bossuyt, P., Boutron, I., Hoffmann, T., Mulrow, C., …, & Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *The BMJ*, *372*, n71. https://doi.org/10.1136/bmj.n71

Praça, G., Fagundes, L., Braga, W., Folgado, H., Morales, J., Chagas, M., Andrade, A., & Greco, P. (2016). Influência da alteração do adversário nas respostas táticas e físicas em pequenos jogos no futebol. [Influence of changing the opponent in tactical and physical demands in soccer small-sided games]. *Revista Brasileira de Ciência e Movimento*, *24*(4), 44-54. https://doi.org/10.18511/rbcm.v24i4.6308

Práxedes, A., Moreno, A., Gil-Arias, A., Claver, F., & Del Villar, F. (2018). The effect of small-sided games with different levels of opposition on the tactical behaviour of young footballers with different levels of sport expertise. *PLoS ONE*, *13*(1), e0190157. https://doi.org/10.1371/journal.pone.0190157

Práxedes, A., Pizarro, D., Travassos, B., Dominguez, M., & Moreno, A (2021). Level of opposition constrains offensive performance in consecutive game situations. An analysis according to game principles. *Physical Education and Sport Pedagogy*, *27*(3), 291-303. https://doi.org/10.1080/17408989.2021.1877269

Ric, A., Hristovski, R., Gonçalves, B., Torres, L., Sampaio, J., & Torrents, C. (2016). Timescales for exploratory tactical behaviour in football small-sided games. *Journal of Sports Sciences*, *34*(18), 1723-1730. https://doi.org/10.1080/02640414.2015.1136068

Santos, S., Coutinho, D., Gonçalves, B., & Sampaio, J. (2023). How many creatives are enough? Exploring how manipulating the number of creative players in the opposing team impacts footballers' performance during small-sided games. *Human Movement Science*, *87*, 103043. https://doi.org/10.1016/j.humov.2022.103043

Santos, S., Jimeénez, S., Sampaio, J., & Leite, N. (2017). Effects of the Skills4Genius sports-based training program in creative behavior. *PLoS ONE*, *12*(2), e172520. https://doi.org/10.1371/journal.pone.0172520

Sarmento, H, Anguera, M., Pereira, A., & Araújo, D. (2018). Talent identification and development in male football: A systematic review. *Sports Medicine*, *48*(4), 907-931. https://doi.org/10.1007/s40279-017-0851-7

Sarmento, H, Clemente, F., Araújo, D., Davids, K., McRobert, A., & Figueiredo, A. (2018). What performance analysts need to know about research trends in association football (2012–2016): A systematic review. *Sports Medicine*, *48*, 799-836. https://doi.org/10.1007/s40279-017-0836-6

Sarmento, H., Clemente, F., Harper, L.D., Teoldo, I., Owen, A., & Figueiredo, A. (2018). Small sided games in soccer–A systematic review. *International Journal of Performance Analysis in Sport*, *18*(5), 693-749. https://doi.org/10.1080/24748668.2018.1517288

Taylor, J., Mellalieu, S., James, N., & Shearer, D. (2008). The influence of match location, quality of opposition, and match status on technical performance in professional association football. *Journal of Sports Sciences*, *26*(9), 885-895. https://doi.org/10.1080/02640410701836887

Teoldo, I., Cardoso, F., & Machado, G. (2021). Tomada de decisão no futebol: da avaliação à aplicação em campo. [Decision-making in soccer: From assessment to application on the pitch.] In W. Matias & P. Athayde (Eds.), *Nas entrelinhas do futebol: espetáculo, gênero e formação. [Between the lines of soccer: Spectacle, gender and education.]* (pp. 187-205). Editora CRV.

Teoldo, I., Guilherme, J., & Garganta, J. (2021). *Football intelligence: Training and tactics for soccer success*. Routledge.

Teoldo, I., Silva, J., Greco, P., & Mesquita, I. (2009). Princípios táticos do jogo de futebol: conceitos e aplicação. [Core tactical principles of soccer game: From concept to the application.] *Motriz*, *15*(3), 657-668. https://doi.org/10.5016/2488

Torrents, C., Ric, A., Hristovski, R., Torres-Ronda, L., Vicente, E., & Sampaio, J. (2016). Emergence of exploratory, technical and tactical behavior in small-sided soccer games when manipulating the number of teammates and opponents. *PLoS ONE*, *11*(12), e168866. https://doi.org/10.1371/journal.pone.0168866

Torres-Ronda, L., Gonçalves, B., Marcelino, R., Torrents, C., Vicente, E., & Sampaio, J. (2015). Heart rate, time-motion, and body impacts when changing the number of teammates and opponents in soccer small-sided games. *Journal of Strength and Conditioning Research*, *29*(10), 2723-2730. https://doi.org/10.1519/JSC.0000000000000932

Travassos, B., Araújo, D., Davids, K., Vilar, L., Esteves, P., & Vanda, C. (2012). Informational constraints shape emergent functional behaviours during performance of interceptive actions in team sports. *Psychology of Sport and Exercise*, *13*(2), 216-223. https://doi.org/10.1016/j.psychsport.2011.11.009

Travassos, B., Vilar, L., Araújo, D., & McGarry, T. (2014). Tactical performance changes with equal vs unequal numbers of players in small-sided football games. *International Journal of Performance Analysis in Sport*, *14*(2), 594-605. https://doi.org/10.1080/24748668.2014.11868745

Wachsmuth, S., Feichtinger, P., Bartley, J., & Höner, O. (2024). Psychological characteristics and future success: A prospective study examining youth soccer players at different stages within the German talent development pathway. *Journal of Applied Sport Psychology*, *36*(2), 276-300. https://doi.org/10.1080/10413200.2023.2224868

Wierike, S.C.M., Van Der Sluis, A., Van Den Akker-Scheek, I., Elferink-Gemser, M.T., & Visscher, C. (2013). Psychosocial factors influencing the recovery of athletes with anterior cruciate ligament injury: A systematic review. *Scandinavian Journal of Medicine and Science in Sports*, *23*(5), 527-540. https://doi.org/10.1111/sms.12010

Yi, Q., Ángel-Gómez, M., Liu, H., & Sampaio, J. (2019). Variation of match statistics and football teams' match performance in the group stage of the EUFA Champions League from 2010 to 2017. *Kinesiology*, *51*(2), 170-181. https://doi.org/ 10.26582/k.51.2.4

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Correspondence to:
Victor Reis Machado
Centre of Research and Studies in Soccer,
Universidade Federal de Viçosa,
Av. PH Rolfs,
SN - University Campus - Centre, Viçosa, Brazil.
Email: victor.machado1@ufv.br

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