

Effects of scoring method on the physical, technical, and tactical performances during football small-sided games (SSGs): A systematic review

Efectos del método de puntuación en el desempeño físico, técnico y táctico durante los juegos de fútbol en espacios reducidos (SSGs): una revisión sistemática

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Abstract. Football is characterized by an invasion sport that involves two teams aiming to score a goal to triumph. Objective: to analyze of scoring method on the physical, technical, and tactical performances during football small-sided games (SSGs). Methods: A systematic review was performed based on PRISMA recommendations in three databases (Medline (Pubmed), Scopus, and Web of Science) using the terms ("small sided games" [Title/Abstract]) AND ("soccer" [Title/Abstract]) OR ("football" [Title/Abstract]) AND ("scoring" [Title/Abstract]). Cross-sectional studies that analyzed SSGs quantity, positioning, and target size were included. Results: A total of 825 articles were initially screened based on the established search. Out of these, 120 were automatically excluded as duplicates and an additional of 65 were manually identified as duplicate. During the title and abstract reading phase, 618 were excluded. Subsequently, during the complete reading phase, 10 more articles were excluded. Still, 4 articles were manually inserted from Google Scholar database due to their theme relevance. As result, a total of 12 studies were included in this review. Conclusion: the number of targets (T) and the scoring zone (SZ) in SSGs seems to influence the training load. SSGs with 1 goal-scoring (1G) and SZ in the end of the field demand more physical effort when compared to 2 goal-scoring (2G) and 3 goal-scoring (3G). SSGs with more T require higher tactical performance. Thus, coaches must use the different formats of the SSGs, SZ or goal-scoring (G) strategies according to the objective of the training session.

Keywords: soccer, team sports, score method, coaching.

Resumen. El fútbol se caracteriza por ser un deporte de invasión que implica dos equipos con el objetivo de marcar un gol para triunfar. Objetivo: analizar el método de puntuación en el desempeño físico, técnico y táctico durante los juegos de fútbol en espacios reducidos (SSGs). Métodos: Se realizó una revisión sistemática basada en las recomendaciones PRISMA en tres bases de datos (Medline (Pubmed), Scopus y Web of Science) utilizando los términos ("juegos reducidos" [Título/Resumen]) Y ("fútbol" [Título/Resumen]) O ("fútbol" [Título/Resumen])) y ("puntuación" [Título/Resumen]). Se incluyeron estudios transversales que analizaron la cantidad de SSGs, el posicionamiento y el tamaño del objetivo. Resultados: Se seleccionaron inicialmente un total de 825 artículos basados en la búsqueda establecida. De estos, 120 se excluyeron automáticamente como duplicados y se identificaron manualmente otros 65 como duplicados adicionales. Durante la fase de lectura de títulos y resúmenes, se excluyeron 618 artículos. Posteriormente, durante la fase de lectura completa, se excluyeron 10 artículos más. Sin embargo, se insertaron manualmente 4 artículos de la base de datos de Google Scholar debido a su relevancia temática. Como resultado, se incluyeron un total de 12 estudios en esta revisión. Conclusión: el número de goles en la zona de puntuación (SZ) en SSGs parece influir en la carga de entrenamiento. Los SSGs con 1 gol y SZ reducida requieren un mayor esfuerzo físico en comparación con los SSGs con 2 goles (2G) y 3 goles (3G). Los SSGs con más goles requieren un mayor rendimiento táctico. Por lo tanto, los entrenadores deben utilizar los diferentes formatos de los SSGs, SZ o estrategias de puntuación según el objetivo de la sesión de entrenamiento.

Palabras clave: fútbol, deportes de equipo, método de puntuación, entrenamiento.

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Introduction

Football is probably one of the most popular sports in the world. It encompasses multidimensional requirements, including physiological, psychological, and biomechanical aspects, as well as technical and tactical elements in both the game and training planning (Diaz-Ochoa et al, 2023; Aguiar et al., 2012).

Despite its secular history, there was a need to improve the training methods used to contribute to the evolution of the sport. Thus, the football small-sided games (SSGs) have emerged as fractional moments of the game that have been progressively studied in football reports and papers (Martín Barrero, 2023; Sarmiento et al., 2018).

The popularity of SSGs in football stems from their ability to elicit diverse acute responses in players. These games

are widely utilized by coaches for football players across various age groups, experience, and competitive levels (Clemente et al., 2017; Clemente et al., 2018). And it different approaches allows the multiplicity of the effects of the football game without compromising the dynamics and moves of the sport (Serra-Olivares, 2016). In this context, the SSGs are used as a tool for training skills that can be transferred into a game (Canton et al., 2021).

The internal training load in SSGs has typically been assessed by physiological measures as heart rate (HR), blood lactate concentration and rating of perceived exertion (RPE). And external training load with technological advice that monitors football players' total distance course, speed zone, sprints, time, and motion (Hill Hass et al., 2011).

In this sense, the SSGs seem to reproduce the dynamics of the football game and influence the emergence of dif-

ferent adaptive behaviors, leading to a low to moderate reproducibility of the technical actions performed during the training (Clemente et al., 2018). However, different tasks such as field size and number of players used during SSGs training may influence player's performance according to the decision-making processes, and therewith achieve coach's goals and the players' needs.

The scientific literature (Sarmiento et al., 2018; Clemente et al., 2014; Clemente et al., 2017; Romero-Caballero et al., 2020; Almeida et al., 2022) addresses that SSGs analyzes the following variables: pitch size (width and depth of the playing space, especially the relationship with the average area per player); number of players (that is, the number of football players opponent, numerical player's imbalances and jokers); changes in the game and its rules (such as limiting the number of touches on the ball, emphasizing defensive or offensive tactics, using or not the offside rule, and throw in); the involvement of the coach (active or passive participation of the coach in encouraging athletes) and the work regimen (related to active and recovery time), among others.

Other possible task demands were also investigated during the SSGs, such as experience level and age of the players, skills level influence, tactical knowledge, physical performance, as well as mental fatigue, and decision making (Badin et al., 2016; Silva et al., 2014; Rowat et al., 2017). All these different configurations of the SSGs can influence the technical, tactical, physiological, and cognitive development, and, therefore, have the potential to enhance the actions and performance during the game. However, few studies presented how the goal-scoring (GS) was performed and its different settings of the targets (Halouani et al., 2014). Thus, the need for further studies regarding the GS method becomes evident, as it's one of the crucial actions in football that determines the victory.

Particularly, the GS in football SSGs is still under investigation. Therefore, the aim of this study was to analyze the scoring method on the physical, technical, and tactical performances during football SSGs.

Material and Methods

Preferable Report Items for Systematic Reviews and Meta-Analysis Protocols (PRISMA) (Page et al., 2021) and Cochrane Handbook for Systematic Reviews of Interventions was used for this research.

Study eligibility and inclusion criteria

It was included cross-sectional studies of SSGs that analyzed the conditions of the GS in the exercises training, and the variable of the method of goal-scoring in SSGs (1 goal-scoring (1G), 2G, 3G and score zone (SZ) as present at Figure 1). In addition, the inclusion criteria were complete articles, with male soccer players, written in English or Spanish, or date filters. Studies that did not contemplate the target's influence in the SSGs training, with goalkeepers' behavior, studies from congresses and in submission phase,

as well as review and case studies were excluded.

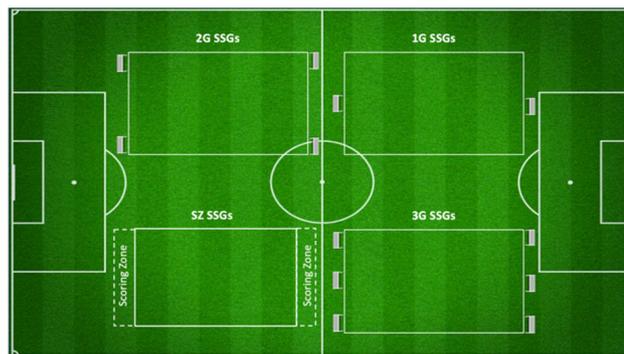


Figure 1. SSGs methods. Reference: Authors. Note: SSG: small-sided game; SG: small goal; SZ: score zone/stop ball; 1G: one goal/target; 2G: two goals/targets; 3G: three goals/ targets

Search strategy

A search was performed from the 1st to the 12th of May 2023 in three databases without filters (Medline (Pubmed), Scopus and Web of Science) using the terms: ((small sided games) AND (soccer)) OR (football)) AND (scoring). Following the search, the references that met the criteria were exported to EndNote's online library. Subsequently, two researchers conducted the removal of duplicates and proceeded to analyze the titles and abstracts of the articles. During the analysis process, any potential disagreements were resolved by involving a third investigator. Following this, all articles that met the inclusion criteria of the study were thoroughly read and examined. Additionally, 4 articles from Google Scholar databases that were relevant to the subject of the study were manually added.

Methodological quality

Methodological quality and risk of bias were assessed using the Cochrane scale ACROBAT-NRSI by seven domains: 1) confounding, 2) study sample selection, 3) type of intervention, 4) non-receiving of the assigned intervention, 5) losses, 6) outcomes measurements, 7) selective reporting of outcomes. For each domain, the classifications "low," "moderate," "severe," "critical" and "no information" are attributed. The overall risk of bias in each study is the domain with the highest risk of bias (STERNE et al., 2016). Two researchers independently assessed the methodological quality of the included studies. In case of disagreements, a third researcher was consulted.

Extraction of data

To characterize the studies, the following data were extracted: first author, year of publication, country of research, athlete level (elite or amateur), and age. In addition, data related to interventions and outcomes were presented as: first author and year of publication, sample characteristics, objective, number of players, area/relative per player (length x width/number of players), work type, approaches, and results.

Results

A total of 825 articles were initially screened based on

the established search. Out of these, 120 were automatically excluded as duplicates and an additional of 65 were manually identified as duplicate. During the title and abstract reading phase, 618 were excluded. Subsequently, during the complete reading phase, 10 more articles were excluded. Still, 4 articles were manually inserted from Google Scholar database due to their theme relevance. As result, a total of 12 studies were included in this review. (See Figure 2. Flowchart of the selected studies)

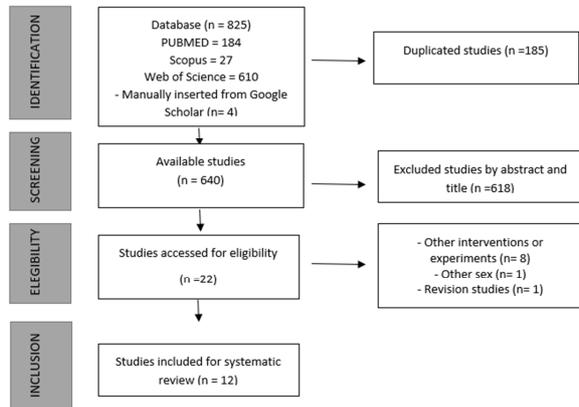


Figure 2. Flowchart of the selected studies

Descriptive studies characterized as first author and year of publication, country of research, age and level of participants were presented in Table 1.

Table 1. Studies descriptive characteristics

First author (year publication)	Country of research	Player Level	Age (years)
Díaz-García et al. (2023)	Spain	Elite	17.39 ± 1.04
Gonet et al. (2020)	Brazil	Amateur	21.2 ± 1.5
Mortatti et al. (2019)	Brazil	Elite	15.7 ± 0.43
Brandes et al. (2017)	Germany	Elite	15.5 ± 0.5
Halouani et al. (2017a)	NI	Amateur	13.5 ± 0.7
Halouani et al. (2017b)	NI	Amateur	13.2 ± 0.6
Castellano et al. (2016)	Spain	Amateur	19.1 ± 1.2
Almeida et al. (2016)	Portugal	Amateur	12.61 ± 0.65/ 14.86 ± 0.47
Pulling et al. (2016)	United King	Amateur	12.1 ± 0.5
Halouani et al. (2014)	NI	Amateur	14.0 ± 0.7
Travassos et al. (2014)	Portugal	Elite	24.5 ± 4.1
Clemente et al. (2014)	Portugal	Amateur	26.4 ± 5.3

Note: NI = not informed

Table 2 presents the methods and results by first author and year of publication, sample size, objective, number of players, area/relative per player (length x width/number of players), work type, approach, and results.

Table 2. Studies description

Author year	Sample	Objective	Number of players	Area/Relative by player	Work (min)	Approaches	Results
Díaz-García et al. 2023	18 players elite	Analyze different scoring systems on physical, tactical, and mental demands during large SSGs	8 x 8 Gk	70 x 40/175 m ²	3 x 12'	(a) 1GS = 1 point (b) 1 GS = 2 points (8 to 12 min) (c) 1 GS = 2 points (4 to 12 min)	a) less fatigue than b b) more physical and mental demand, and more GS
Gonet et al., 2020	20 players amateur	Compare tactical, technical and RPE performance across different SSGs formats	5 x 5	25 x 20/50 m ²	4 x 5' / 3' rest	1G SSGs 2G SSGs	RPE: no changes in 1G and 2G SSGs. Ball recovery: improved on 1G SSGs
Mortatti et al., 2019	16 players elite	Compare IL in young football players. In SSGs with different number of targets. HR Max., TRIMP and RSA	4 x 4	30 x 25/94 m ²	4 x 5' / 2,5' rest	1G SSGs 3G SSGs	HRmax: ↑1G SSGs and ↓3G SSGs. RSA test: ↓ post 1G SSGs compared to 3G SSGs. IL: ↑1G SSGs than 3G SSGs.
Brandes et al., 2017	16 players elite	Determine physical load, movement characteristics with 1G, 2G, SZ SSGs	4 x 4	35 x 25/109 m ²	3 x 4' / 2' rest	Measurements HR, La and RPE. The travelled distance, the number of sprints. The volume of play and effectiveness index. Estimated by TSAP.	1G SSGs ↓ intensity of play. The high physiological load does not negatively affect the overall performance of the game.
Halouani et al. 2017a	16 players amateur	Effects of variations in field dimensions on the physiological responses of youth football players in SSGs	4 x 4	(a) small: 10x15/19m ² (b) medium: 15x20/37,5m ² (c) large: 20x25/62,5m ²	4 x 4' / 2' rest	SZ SSG and 1G SSGs HR, [La] and RPE	HR and [La]: SZ SSG > 1G SSGs (a,b,c) RPE: SZ SSG > 1G SSGs (c)
Halouani et al. 2017b	18 players amateur	Identify physiological responses in three forms of SSGs with different rules	2 x 2 3 x 3 4 x 4	25 x 20 m 125m ² 83,3m ² 62,5m ²	4 x 4' / 2' rest	SZ SSG and 1G SSGs HR, [La] and RPE	HR: SZ SSG > 1G SSGs (all area formats). [La] and RPE: SZ SSGs > 1G SSGs in 2 x 2 players number
Castellano et al. 2016	24 players amateur	Analyze the influence of using different methods of SSGs on dispersion, shape, and creation of space in football teams during SSG	Gk+4 x Gk+4 Gk+4 x Gk+4	40 x 25 m	6 x 6' / 6' rest	Tactical behaviour 1G SSGs 7G SSGs + Gk 7G SSGs + Gk + floaters	a) L and W: offense > defense on all SSGs. b) More defense actions on all SSGs, except the SG. c) 7G: ↓ space for players and their closest opponents.

			+ 2 floaters					d) SG e 7G: greater defense openness.
Almeida et al. 2016	16 players amateur	Examine scoring mode and age-related effects on defensive performance	4 x 4	30 x 20/75 m ²	3 x 10'/5' rest	2G SSGs SZ SSGs 4G SSGs		a) SZ > 2G SSGs: chances of regaining possession through tackle in the defensive midfield and successful interceptions. b) 4G < 2G SSGs: chances of regaining possession c) Age: ↓ the probability of regaining possession through interception. And with aging increase, the distance between players decreases.
Pulling et al. 2016	8 players amateur	Influence of the number of targets and the position on the different ways of GS	4 x 4	45.7x 36.5/209 m ²	2 x 5'/3' rest	Marking methods: 2G: (default); 4G: (1 in each corner); 2G: inside the field. 4G: inside. Valid point from the front or back.		↑forward, backward, and penetrating passes with 2G. Side passes in the 4G game. ↑spins in the 4G game. Kicks and points were more frequent in the game of 4G positioned in each corner.
Halouani et al. 2014	12 players amateur	Examine the effects of SZ and SG rules on physiological responses during an SSGs	3 x 3	20 x 15 m/50 m ²	4 x 4'/2' rest	SZ SSGs: stop the ball in an area of 15 × 1 m behind the bottom line of the field. SG SSG, valid goals on a mini goal (1 × 0,5 m).		HR and [La]: SZ SSGs > SG SSG RPE: no difference
Travassos et al. 2014	20 players elite	The change on targets information modifies teams' tactical behavior during football SSGs	Gk+5 x Gk+5 5 x 5	35 x 25/87,5 m ²	2 x 5'/3' rest	2G + Gk 3G SSGs		3G SSGs: ↑ distances between teams, players' attention; RPE, tactical performance.
Clemente et al. 2014	10 players amateur	Examine the effect of number of players and scoring method on HR responses, time/movement, and technical/tactical performance	2 x 2 + 2 3 x 3 + 2 4 x 4 + 2	19 x 19 m/90 m ² 23 x 23 m/90 m ² 27 x 27 m/90 m ²	3 x 5'/3' rest	2 neutral supports. The goal was scored when a player received the ball from a teammate behind the score line.		↑ Efficiency index, ↑performance and ball attacks were found in the goal zone. Between formats, ↑game volume and efficiency index in small format (2 vs 2 +2)

Note: SSG: small-sided game; SG: small goal; SZ: score zone/stop ball; HR: heart rate; RPE: rating of perception of effort; 1G: one goal/target; 2G: two goals/targets; 3G: three goals/ targets; 4G: four goals/ targets; [La]: blood lactate concentration; GPS: Global Position System; RSA: repeated sprint ability; IL: internal load; TSAP: Team Sport Assessment Procedure; TRIMP: Eduard's training impulse; ↑: increased; ↓: decreased; >: higher; <: lower; L: length; W: width; Gk: goalkeeper.

Table 3 present the risk of bias of the studies included in this systematic review. In the pre-intervention assessment, under the domain of "confounding bias," all studies were classified as "low." During the intervention phase, the studies by Halouani et al. (2014), Halouani et al. (2017a), Halouani et al. (2017b), Clemente et al. (2014), Gonet et al. (2020), and Brandes et al. (2017) presented a

"moderate risk" due to lack of information as non-indication of player positioning, and undisclosed type of equipment used. In the post-assessment, all studies were classified as "low" in all domains, except for the study by Pulling et al. (2016), which had a "moderate risk" in the participant selection due to insufficient sampling methods used by the authors.

Table 3. Analysis of the methodological quality of the selected studies

Studies	Pre-intervention		During intervention		Post-intervention			Classification
	1	2	3	4	5	6	7	
Díaz-García et al. (2023)	Low	Low	Low	Low	Low	Low	Low	Low
Gonet et al. (2020)	Low	Low	Moderate	Low	Low	Low	Low	Moderate
Mortatti et al. (2019)	Low	Low	Low	Low	Low	Low	Low	Low
Brandes et al. (2017)	Low	Low	Moderate	Low	Low	Low	Low	Moderate
Pulling et al. (2016)	Low	Moderate	Low	Low	Low	Low	Low	Moderate
Halouani et al. (2017a)	Low	Low	Moderate	Low	Low	Low	Low	Moderate
Halouani et al. (2017b)	Low	Low	Moderate	Low	Low	Low	Low	Moderate
Castellano et al. (2016)	Low	Low	Low	Low	Low	Low	Low	Low
Almeida et al. (2016)	Low	Low	Low	Low	Low	Low	Low	Low
Halouani et al. (2014)	Low	Low	Moderate	Low	Low	Low	Low	Moderate
Travassos et al. (2014)	Low	Low	Low	Low	Low	Low	Low	Low
Clemente et al. (2014)	Low	Low	Moderate	Low	Low	Low	Low	Moderate

Note: Analysis items: 1) confounding, 2) selection of study participants, 3) measurement of the intervention, 4) non-receiving of the assigned intervention, 5) losses, 6) measurement of outcomes, 7) selective reporting of outcomes

Discussion

The purpose of this systematic review was to analyze the GS method on the physical, technical, and tactical performances during football SSGs. No filtering was applied during the reference search process. Out of the 12 studies included in this review, 8 studies originated from Europe, 2 from Brazil, and 2 were not specified. The participants' experience ranged from 2 to 12 years, and the number of players varied from 8 to 30 with male participants across the studies. The oldest studies (Halouani et al., 2014; Clemente et al., 2014; Travassos et al., 2014) were conducted in 2014, while the most recent one (García-Díaz et al., 2023) was conducted in 2023, with a range of 9 years.

The studies in this review revealed differences in physical, technical, and tactical performance, which will be presented in the following topics to assist coaches in designing tasks using SSGs to improve game performance.

Physical Performance

The target (T) number and GS was analyzed based on the game execution/recovery time, field area, and number of players involved in the SSGs. Mortatti et al. (2019) demonstrated that the 1G SSGs induces a higher internal load using the variables maximum heart rate (HRmax), Edward's training impulse (TRIMP), and test of performance in the repeated sprint ability (RSA) when compared to the 3G SSGs. Brandes et al. (2012) emphasized that the mean HR in score zone (SZ) SSGs is 90% HRmax., and that is higher than in 1G and 2G SSGs.

Heart rate (HR), rating of perceived exertion (RPE), and lactate concentration [La] were higher in SZ SSGs compared to 1G and 2G SSGs in games with 3x3 and 4x4 configuration. This suggests that including a smaller number of players, especially the younger ones, in 3x3 SSGs may be beneficial (Mortatti et al., 2019; Halouani et al., 2017a; Brandes et al., 2017; Halouani et al., 2014; Brandes et al., 2012).

Mortatti et al. (2019) reported that 2G and 3G SSGs could induce more attacking and defensive actions, resulting in increased internal load (HR). Abrantes et al. (2012) stated that 1G SSGs promote a greater quantity of movements to GS. However, in SZ SSGs, the HR is higher than in 2G and 3G SSGs.

When comparing the effects of three different scoring systems on the physical performance of football players in 8x8 SSG with goalkeepers, for 12 minutes, it was observed that the increasing of the GS with longer playing time resulted in higher HRmax and RPE compared to the official scoring system (Dias-García et al., 2023). It is supported by Lago-Peñas et al. (2010), who mentioned an increased effort in ball control based on the score situation.

The reported intensity in 1G and 3G SSGs was 91% and 89% HRmax., respectively, indicating the use of high-intensity movements that align with the technical-tactical

context found in football matches (Mortatti et al., 2019). Owen et al. (2011) and Mallo et al. (2008) suggested that the intensity achieved in SSGs training leads to improvements in athletes' aerobic power. Therefore, Hammami et al. (2017) observed that the number of targets in SSGs should be considered when the training goal is to enhance aerobic power.

Analyzing the different training zones (see Table 4) it was observed that the total distance covered, and the match volume (ball recovery and maintenance) are higher in 1G SSGs compared to 2G SSGs. However, the total number of sprints remains similar. Nonetheless, the 2G SSGs suggests fewer benefits in terms of football-specific endurance capacity compared to 1G and SZ SSGs (Brandes et al., 2017).

Table 4.

Intensity zones of load according to the heart rate (Moravec et al., 2007)

Zone	% from HRmax	Character
Zone 1	50-59%	Very low intensity
Zone 2	60-69%	Low intensity
Zone 3	70-79%	Medium intensity
Zone 4	80-89%	Submaximal intensity
Zone 5	90-100%	Maximal Intensity

A study with amateur players analyzed heart rate (HR) and movement characteristics in different types of GS based on the number of players (2 x 2, 3 x 3, and 4 x 4, all with two external supports and the same relative area of 90 m²/player) during 1G, 2G, and SZ SSGs. The 3 x 3 format and 1G SSGs promoted higher HR responses due to the greater complexity of tactical actions, and the need for GS requires more effort from the attacking team. The 4 x 4 format and 2G and SZ SSGs indicated a higher distance course and speed which can be justified by the possibility of greater movement to GS (Mortatti et al., 2019; Clemente et al., 2014; Katis & Kellis, 2009).

However, Gonet et al. (2020) observed that there was no variation of the RPE in university players in 1G and 2G SSGs. Halouani et al. (2014), Brandes et al. (2017), and Brandes et al. (2012) also did not find a significant difference in PSE values when analyzing 1G, 2G, and SZ SSGs. This suggests that manipulating small and similar relative areas does not seem to indicate changes in football players' RPE. Still, Halouani et al. (2017a) found higher PSE when comparing the 2 x 2 format with 3 x 3 and 4 x 4.

Regarding [La] the results also suggest that larger field dimensions statistically increase [La] values when comparing SSGs methods on three field size (Halouani et al. (2017b; Rampini et al., 2007; Tessitore et al., 2006; Aroso et al., 2004). It is possible that larger field dimensions increase [La] concentration due to the increased area that each player must cover and the reduced recovery interval during the activity. This may result from an increase in metabolic demand and exercise intensity because in a larger area, players may need to perform longer sprints, exert more physical effort, and have less rest time between actions, which can lead to a higher [La].

Technical and Tactical Performance

Considering the effects of different scoring methods, the analysis of the technical-tactical variable showed that 1G SSGs lead to an increase in inaccurate passes, ball recovery, and ball loss (Almeida et al., 2016; Clemente et al., 2014). These results seem to favor a defensive organization, given the reduced space on the field and the need to protect only a small central area (Travassos et al., 2014). Therefore, there is a need for greater offensive organization, with more successful passes and shots, aiming to create imbalances in the defense and GS.

One way to quantify the technical-tactical performance of football players is through the Team Sport Assessment Procedure Protocol (TSAP) (Clemente et al., 2014; Brandes et al., 2017; Gonet et al., 2020). This protocol uses the following indices: game volume, efficiency index, performance score, and attacks with the ball (see table 5) (Gréhaigne et al., 1997, 2005).

Regarding game volume index, Brandes et al. (2017) observed that the game volume in 1G SSGs is higher than 2G SSGs. This difference can be influenced by the need for play creation and better defensive posture, leading to a higher number of lost balls or won balls. Travassos et al. (2014) presented it as a tactical approach, where teams occupy the central defensive zone of the field during SSGs with a reduced number of T.

A study with young amateur football players compared the effects of using 1G SSGs, goalkeepers or floaters (players who provide a temporary advantage to the team in possession of the ball) in different 4 x 4 formats. It was observed that there was greater ball possession in 1G SSGs and floaters compared to goalkeepers and floaters (Castellano et al., 2016). Additionally, Clemente et al. (2014) found significantly higher values for game volume and efficiency index in the small format (2 x 2 + 2), which may be related to maintaining ball possession, enhanced by the action of floaters who provide numerical superiority into the ball game.

About the attacks with the ball index, the SZ SSGs presented a higher number of it when compared to 1G and 2G SSGs with amateur football players in the formats of 2 x 2 + 2, 3 x 3 + 2, and 4 x 4 + 2. This condition seems to favor the attacking side as it provides a larger area to score points without the goalkeeper opposition (Clemente et al., 2014).

Indeed, Almeida et al. (2016) reported that games with SZ SSGs result in a higher number of attacks with the ball. This structure seems to provide more space on the field, both in terms of depth and width, ensuring successful passes and receptions, while making it more challenging to organize the defense (Bach Padilha et al., 2017; Praça et al., 2016).

In the case of 2G SSGs it provides greater control of the ball as the defense needs to protect two simultaneous areas/targets and tends to maintain lower defensive pressure on the central zone of the field (Travassos et al., 2014). With reduced defensive pressure, there is an increase in the number of ball contacts, possession, and

receptions by the attacking team in the SSG. In situations of defensive numerical disadvantage, players tend to group together and position themselves closer to their own goal (Bach Padilha et al., 2017; Ric et al., 2016; Sampaio et al., 2014; Travassos et al., 2014).

Pulling et al. (2016) investigated the influence of the quantity and positioning of Tused in SSGs on the frequency of technical actions and offensive scenarios in under-13 football players, at four different 4 x 4 game formats within an area of 202 m²/player (45 x 36 m): 1G and 2G SSGs, 1G SSGs with goals positioned inside the field, where points could be scored by passing or shooting the ball only from the back of the target, and 2G SSGs positioned inside the field, where points could be scored by passing or shooting the ball in any direction (front or back) of the target.

The study identified that 1G SSGs allow for more forward, backward, and penetrating passes (passes between two defenders). In 2G SSGs, there were more passes, lateral switches, and unsuccessful passes (i.e., passes that did not reach teammates). And in 1G SSGs with goals positioned inside the field, there was a lower quantity of passes, which can be attributed to having more targets for attacking, providing more opportunities for players to score points (Pulling et al., 2016). Overall, the most frequently performed technical action within the SSGs was passing, which is consistent with the findings of Taylor et al. (2004)

According to Almeida et al. (2016), in 1G SSGs, lateral passes, turns, and shots were more frequently, reducing the risk of losing possession of the ball. Additionally, Almeida et al. (2013) concluded that the more time spent practicing football actions, the more important it is for the player's development.

Travassos et al. (2014) found higher levels of shooting (goal attempts) in 3G SSGs compared to 2G SSGs with goalkeepers. In this context, players in 3G SSGs may opt for individual GS opportunities rather than passing the ball to a teammate. The presence of more targets in the game format may have influenced their decision-making.

Another technical-tactical action is the lateral switch which occurs more frequently in 2G SSGs than in 1G SSGs (Fenoglio, 2004). This is likely due to the challenge faced by the defense in simultaneously pressuring two areas.

Dribbling was also evaluated in prepubescent football players and the results presented that 1G SSGs allow for fewer dribbles compared to 1G SSGs with internal goals (Small, 2006). In a study conducted by Fenoglio (2004) with prepubescent players at Manchester United, it was observed that the number of dribbles in 2G SSGs was higher than in 1G SSGs. This could be attributed to the accumulation of defensive players in 1G SSGs (Clemente et al., 2017). And may be associated to the gameplay characteristic of having a cluster of defensive players near the targets, with only the larger areas offering spaces for attacking players to perform dribbles.

The outcome of this study is to provide insights for

football coaches about the one of the most important aspects in football game, the GS. However, it is essential to acknowledge the limitations of the present systematic review. Studies involving athletes at different maturational and technical levels, including amateur, school, university, and elite players may influence the scoring methods and the physiological responses. Furthermore, there is a lack of studies examining the effect of goal type on training load, as well as time and motion measurements, specifically with professional soccer players.

So, it is important to consider these limitations when interpreting the results and applying them to specific populations or contexts. Further research, particularly with professional football players, is needed to better understand the impact of goal type on training and player performance.

Conclusion

The studies investigated in this review presented the effects of scoring method on the physical, technical, and tactical performances during football small-sided games.

In physical performance, the use of 1G SSGs seems to require a higher physical demand, based on HR, when compared to 2G and 3G SSGs. The SZ is more intense (HR and RPE) when compared to 1G, 2G and 3G SSGs.

Technical/tactical performance indicates that the number of wrong passes, lost and conquered balls tend to be higher, the performance score, and efficiency index seems to be better in 1G SSGs. The positioning of the target within the SSGs field suggests that football players need to make different tactical decisions to accomplish the GS, since there are different ways to achieve it.

The use of these different approaches seems to promote alternatives for the coach to develop important skills in football training.

It is suggested that more studies with professional football players to investigate the time and movement metrics with the training load and the influence of different configurations of GS in reduced games.

Practical applications

It is expected that the content of this review may assist football coaches in making decisions regarding the choice of the best training method, knowing that:

1. 1G SSGs result in a higher internal load but tend to induce more inaccurate passes, lost balls, and fast attacks.
2. 2G SSGs require greater attention to the tactical aspect and result in defensive imbalance.
3. SZ SSGs provoke an increase in physiological variables and favor attacking actions.
4. There is no significant difference in RPE between 1G, 2G, and SZ SSGs.
5. [La] has a direct relationship with the increase in the field space.

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