



Systematic Review: Technical-Tactical Behaviour in Small-Sided Games in Men's Football

Ángel Ferreira-Ruiz¹ , Francisco García-Banderas¹  & Ignacio Martín-Tamayo^{2*} 

¹ Department of Physical and Sports Education. Faculty of Physical Activity and Sports Sciences. University of Granada, Granada (Spain).

² Department of Methodology of Behavioural Sciences. Faculty of Psychology. University of Granada, Granada (Spain)



Cite this article:

Ferreira-Ruiz, Á., García-Banderas, F., & Martín-Tamayo, I. (2022). Systematic Review: Technical-Tactical Behaviour in Small-Sided Games in Men's Football. *Apunts Educación Física y Deportes*, 148, 42-61. [https://doi.org/10.5672/apunts.2014-0983.es.\(2022/2\).148.06](https://doi.org/10.5672/apunts.2014-0983.es.(2022/2).148.06)

Abstract

Small-Sided Games (SSGs) have become a widely used tool by football coaches, yet there are few studies on their influence on technical-tactical behaviour. The aim of this study was to carry out a review of the technical-tactical behaviours that appear in the main formats of SSG tasks. Following instructions from the PRISMA's guide (Preferred Reporting for Items for Systematic Reviews and Meta-Analyses), a search was made in the Google Scholar, Pubmed, Scopus, SportDiscus and Web of Science databases, which yielded 48 papers were included in the review as they met the pre-established requirements. These have been grouped for analysis into the following categories: 1. Imbalanced interactions; 2. Playing field dimensions; 3. Players' age; 4. Number of players; 5. Modification of the game's principles, sub grouped into the following: 5.1 Goals; 5.2 Aim; 5.3 Limit of touches. The included articles were subjected to a methodological quality assessment and all of them scored good or excellent. This assessment was performed by two researchers and resulted in a Cohen's Kappa agreement index of .96. As a result, all the modifications in the SSG formats have led to the development of different actions on the part of the players: the distribution of players on the field, the development of certain tactical behaviours or the number and type of technical actions, are among the most important ones. This information is very useful for coaches as they are able to tailor the formats of the SSG in terms of the games' desired goal in order to achieve the upmost occurrence of certain actions or work with a certain conditional load.

Keywords: analysis of performance, collective behaviour, modified games, technical-tactical performance, small-sided situations.

Editor:

© Generalitat de Catalunya
Departament de la Presidència
Institut Nacional d'Educació
Física de Catalunya (INEFC)

ISSN: 2014-0983

*Correspondence:
Ignacio Martín Tamayo
imartin@ugr.es

Section:
Sports training

Original language:
Spanish

Received:
June 2, 2021

Accepted:
November 11, 2021

Published:
April 1, 2022

Cover:
2022 UN International
Year of Sustainable
Mountain Development.
Tirol (Austria)
@Adobe Stock

Introduction

Football is a complex sport of teamwork and competition, a shared space whose objective is to kick the ball into the opposite goal more times than the opposition (Parlebás, 2020). The fact that several players share a space, fighting over possession of the ball gives the sport one of its most defining characteristics: spontaneity and, therefore, makes it more difficult to predict events (Praça et al., 2016). This reality is recognised by coaches and new sport professionals who understand that training environments should resemble those that are found in a real competitive contexts (Ros & Oliva, 2005). As a result, *Small Sided Games* (SSG) have become a widely used training tool in football (Clemente et al., 2020b). SSGs are down-sized situations where one, several, or all phases of the game can be trained in a smaller space and where there are fewer players than in a real situation.

SSGs are frequently used in football; however, they do not always match their design to the desired training objective. Therefore, in recent decades, a multitude of studies have emerged to investigate the influence of SSGs. These studies have shown that each modification in the design of an SSG influences the achievement of the desired objectives and the event of certain behaviours (Praça et al., 2016). Therefore, it is important for the coach to appreciate this relationship and understand its influence in order to design tasks according to the desired objectives.

SSG are training situations that somewhat replicate competitive contexts with the aim of optimising the different components that make up an athlete (Pons, et al., 2020). can be modified or impacted by multiple pathways or factors: creating imbalanced offensive and defensive interactions (Moreira et al., 2020); varying the dimensions of the playing field (Coutinho et al., 2019); according to the age of the participants (Coutinho, et al., 2020); modifying the number of players (Machado et al., 2019); changing the game's principles (Gonet et al., 2020); introducing position changes or including the competitive element (Navarro-Adelantado, 2002). The multitude of possibilities for SSG modifications may hinder this practical knowledge. Thus, some systematic reviews synthesising the main effects of SSG tasks on technical-tactical behaviour have been elaborated (Clemente et al., 2020b; Ometto et al., 2018; Sarmiento et al., 2018).

The awareness of the possible actions or specific effects that each modification in SSG tasks entails is of enormous importance since it can influence: the accuracy of the game, making it similar to reality or decontextualising it by introducing certain principles of stimulation (Serra-Olivares et al., 2015); the conditional load, since it can lead to a disproportionate number of accelerations and decelerations (Martone et al., 2017); the interactions between opponents and teammates (Clemente et al., 2018), etc. Therefore, this study is highly

useful as it provides practical knowledge to coaches and can help them in adjusting their tasks to the desired objectives.

Being an area of great interest where new researches emerge every year, and with the aim of providing coaches with practical and relevant information that can help them properly design tasks in order to achieve the desired technical-tactical objective, this paper is developed with the aim of reviewing, studying and analysing the scientific literature on the influence of SSG tasks on football players' technical-tactical behaviour. In this study a grouping by categories of the most global SSG modifications with a greater number of studies is made, which allows comparing them and concluding which of them and in what way they alter the actions of the players. In this study a grouping by categories of the most global SSG modifications with a large number of studies is made, which allows them to be compared and conclude which of them, and in what way they, affect players' actions.

Methodology

Search strategy: databases and selection criteria

This systematic review followed the recommendations of the PRISMA guidelines for the production of systematic reviews and meta-analyses (Liberati et al., 2009). The search was performed in the following databases: a) Google Scholar; b) Pubmed; c) Scopus; d) SportDiscus; y e) Web of Science; 4th December, 2020, using the keywords "Soccer" OR "Football" associated with the terms: "Small Sided Games" OR "Small Sided and Conditioned Games" OR "Modified Games" and associated in turn with the terms: "Tactical Behaviour" OR "Tactical Decision" OR "Decision Making" OR "Team Behaviour" OR "Tactical Performance".

The selection criteria were as follows: a) written in English o Spanish; b) exclusively in the realm of football; c) completed and available; d) competitive context; and e) that included training through SSGs. And these were the non-inclusion criteria: a) carried out by women; b) educational environment; c) no available in English or Spanish; d) did not concern technical-tactical behaviour in football; e) only evaluate the influence of SSG tasks on conditional performance; f) did not have a scientific research framework; g) dealt with the coach's influence on technical-tactical behaviour; h) studied the goalies' behaviour; i) Systematic reviews or congress proceedings and j) did not present their findings.

The papers found in this search were reviewed and those that were considered potential research because of

their title or abstract were selected. From these articles, full versions of the works were obtained, which were analysed and evaluated, and those that met any non-inclusion criteria were discarded. The complete selection was carried out independently by two authors with the intervention of a third in case of any disagreement.

Quality of research

To assess the included papers, a questionnaire of 16 specific and validated items was used for the assessment of research regarding SSGs (Sarmiento et al., 2018). Each item was scored on a scale from 0 to 1, with 0 meaning not met. To obtain the score for each study, the percentage of completed questions with respect to the total was calculated.

Research with scores less than or equal to 50% were rated as having low methodological quality, while those with scores between 51% and 75% were considered as having good methodological quality and those with scores above 75% were considered as having excellent methodological quality (Sarmiento et al., 2018).

Results

Search, sorting and selection of articles

In the database search, 1294 articles were found. These articles were imported into the Mendeley Reference Manager (Mendeley Desktop, Version 1.9.18, 2008-2020). Duplicate articles (372) were discarded. The remaining 922 articles were sorted according to their relevance or coincidence with the subject matter, by title and abstract, resulting in a total of 94 articles.

The full versions of the 94 articles gathered were analysed in detail: 48 articles were rejected according to the non-selection criteria. Another article was rejected because no other work could be found with which a comparison could be made. After the sorting process, a total of 47 articles were obtained, which were reviewed and analysed in depth for this study (see Figure 1). Of these, 16 were included in more than one category as they investigated more than one variable. Of the total number of classified articles, 23 (48.93%) were published in the last 4 years (between 2017 and 2020) and the oldest article was published in 2010.

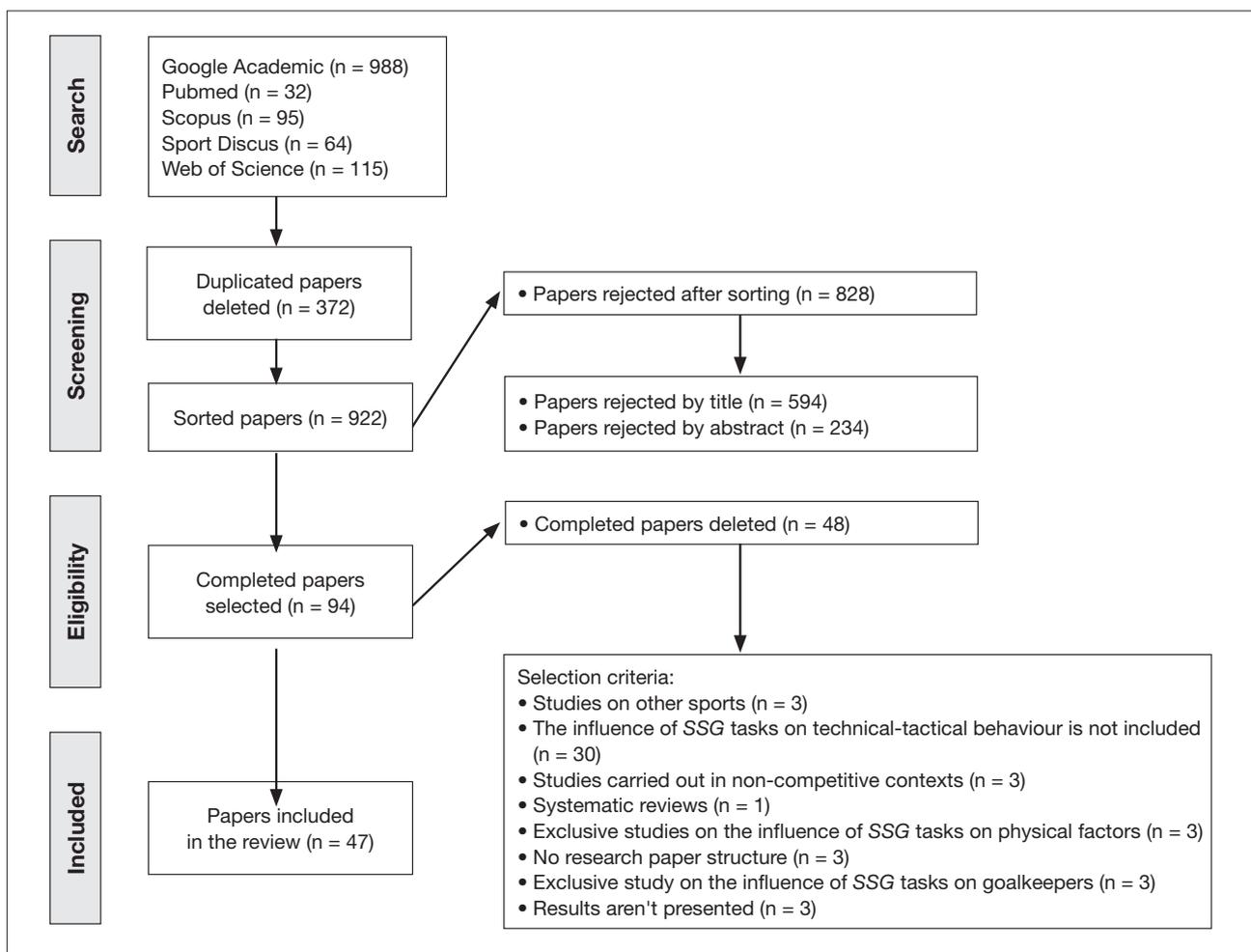


Figure 1: Flowchart of the selection process of the articles.

Table 1
Summary of the most relevant characteristics of each of the studies included in this review.

1. Imbalanced interactions							
Study (year)	Sample	Aim	SSG format	Field size (m)	Area per player (m ²)	Training programme	Variables analysed
Bach Padilha et al. (2017)	168 players 16.61 ± 0.65 years	To study the effects of multivalent inside players	GK + 3 vs 3 + GK GK + 3 vs 3 + GK + 2	36 x 27	162 162	1 x 4'	General principles of the game analysed by FUT-SAT
Bredt et al. (2016)	18 players 16.4 ± 0.4 years 68.4 ± 8.0 kg	To investigate the physical, physiological and tactical demands in situations of numerical equality and inferiority	3 vs 3 4 vs 3	36 x 27	162 138.8	12 x 4'/4'	Physical demands measured with SPIProX2 GPS, heart rate measured with Polar, and tactical demands measured with FUT-SAT
Clemente et al. (2014)	10 players 26.4 ± 5.3 years 8.4 ± 3.2 exp. 179.3 ± 4.3 cm 71.2 ± 7.1 kg	To study the influence of players and the method of recording heart rate and technical-tactical actions	2 vs 2 + 2 3 vs 3 + 2 4 vs 4 + 2	19 x 19 23 x 23 27 x 27	90	3 x 5'/3'	Physical and physiological variables measured with Polar RC3 GPS and technical-tactical demands measured with TSAP
Gonçalves et al. (2016)	24 players 25.6 ± 4.9 years 180.5 ± 4.3 cm 74.7 ± 4.8 kg	To study the influence of the number of players and numerical inequality on player positioning	4 vs 3 4 vs 5 4 vs 7	40 x 30	171.4 133.3 109.0	1 x 4'	Distance to the team's centre, distance of the opponents to the team's centre and distance of the nearest opponent, measured with GPS SPI-Pro
Moreira et al. (2020)	18 players 13.1 ± 0.6 years 18 players 14.3 ± 0.7 years	To compare the influence of manipulating total and relative area per player on tactical behaviour	3 vs 3 3 vs 3 + 1 3 vs 3 + 1	36 x 27 36 x 27 40 x 29	162 139 162	4 x 4'/4'	General principles of the game measured with FUT-SAT. Team interactions measured with Social Network Analysis applied to Team Sport
Nunes et al. (2020a)	20 players 22.3 ± 2.0 years 71.4 ± 7.0 kg 177.1 ± 6.8 cm 12.1 ± years of experience	To study the effect of numerical inequalities in external physical load, tactical demands and internal load	4 vs 2 4 vs 3 4 vs 4 4 vs 5 4 vs 6	30 x 25	125 107.1 93.7 83.3 75	4 x 4'/4'	External load and tactical actions measured with GPS and ZEPP Player Soccer System. Internal load measured with Borg Scale

Table 1 (Continuation)
Summary of the most relevant characteristics of each of the studies included in this review.

1. Imbalanced interactions							
Study (year)	Sample	Aim	SOG format	Field size (m)	Area per player (m ²)	Training programme	Variables analysed
Praça et al. (2016)	18 players 16.4 ± 0.7 years	To investigate the influence of procedural knowledge and numerical dominance on tactical behaviour	3 vs 3 4 vs 3	36 x 27	162 138.8	2 x 4'/4'	Procedural tactical knowledge measured with PTKT and tactical behaviour measured with FUT-SAT
Praça et al. (2016)	18 players 16.4 ± 0.7 years 4.2 years of experience	To compare tactical behaviour in equal and numerical superiority situations	3 vs 3 3 vs 3 + 1 3 vs 3 + 2	36 x 27	162 138.5 121.5	2 x 4'/4'	Distribution behaviour in length, amplitude and distance to the team's centre and distance between players with GPS SPI-Pro X2
Práxedes et al. (2016)	20 players 10.5 ± 0.6 years 4.8 ± 1.4 exp.	To analyse the influence of equalities and numerical superiorities on tactics	3 vs 2 3 vs 3	35 x 20	140 116.6	2 x 4'/1	Decision-making analysed by GPET
Ric et al. (2016)	8 players 26 ± 4.9 years 16.9 ± 4.9 exp.	To study tactical behaviour in different numerical inequalities	4 vs 3 4 vs 5 4 vs 7	40 x 30	171.4 133.3 109.0	2 x 3'/4'	Player distribution measured with GPS SPI-Pro X and tactical behaviour measured with AD-HOC tool
Sampaio et al. (2014)	24 players 20.8 ± 1 years 173.2 ± 6.3 cm 5.2 ± 1.3 years of experience	To compare temporal variables, cardiac variability and tactical behaviour in different match paces, results and inequalities	4 vs 5 5 vs 4	60 x 40	266.6 266.6	3 x 5'/3'	Position data, speed and distance travelled measured with GPS SPI-Pro
Torrents et al. (2016)	22 professionals 25.6 ± 4.9 years 22 amateur 23.1 ± 0.7 years	To study the effect of the number of teammates and opponents on tactical behaviour	GK + 4 vs 7 + GK GK + 4 vs 5 + GK GK + 4 vs 3 + GK	40 x 30	109.0 133.3 171.4	2 x 3'/4'	Tactical actions measured with observational tool
Travassos et al. (2014)	15 players 19.6 ± 1.9 years 6.7 ± 4.5 exp	To compare tactical behaviour in 4 vs 3 situations	GK + 4 vs 3 + GK GK + 3 vs 3 + GK	40 x 20	114.2 133.3	6 x 5'	Spatial positioning measured with the TACT programme

Table 1 (Continuation)
 Summary of the most relevant characteristics of each of the studies included in this review.

2. Field size							
Study (year)	Sample	Aim	SSG format	Field size (m)	Area per player (m ²)	Training programme	Variables analysed
Castellano et al. (2017)	14 players	To study the influence of different field lengths on SSG 7 vs 7 tasks in U-13 and U-14 players	GK + 6 vs 6 + GK	60 x 40	200	1 x 7'4'	Spatial positioning measured with GPS
	13 ± 0.3 years			50 x 40	167		
	14 players			40 x 40	133		
	14 ± 0.3 years			30 x 40	100		
Frencken et al. (2013)	10 players	To assess the effect of field dimensions on tactical behaviour	GK + 4 vs 4 + GK	30 x 20	75	1 x 8'	Spatial positioning measured with LPM (Inmotion Object Tracking BV)
	22 ± 3 years			24 x 20	60		
	14 ± 0.3 years			30 x 16	60		
				24 x 16	48		
García Ángulo et al. (2020)	40 players	To analyse the effect of the reduction of number of players, goal size and field size on tactical behaviour	GK + 7 vs 7 + GK GK + 4 vs 4 + GK	58 x 38	136.7	2 x 20'10'	Technical-tactical actions measured with observational tool
	11.7 ± 0,4 years			38 x 20	47.6		
	2.9 ± 1,1 years of experience			58 x 38	220.4		
				38 x 30	76		
Gollin et al. (2016)	22 players	To assess the influence of dimensions in breadth and depth and the presence of multivalent players on tactical behaviour and motor activity	4 vs 4 + 3	35 x 25	79.5	8 x 3'3'	Spatial positioning measured with SPI HPU GPS
	14 ± 1 years			25 x 35	79.5		
	168 ± 8 cm						
	56 ± 8 kg						
Martone et al. (2017)	17 players	To evaluate the effect of various areas per player on exercise intensity and technical-tactical actions	3 vs 3 4 vs 4 5 vs 5	20 x 30	66.6	3 x 4'3'	Heart rate measured with FIT PULSE 1.37 and technical-tactical actions measured with observational tool
	10 ± 0.5 years			30 x 30	150.50		
	16 players				112.6		
	13.2 ± 0.2 years				40.90		

Table 1 (Continuation)
 Summary of the most relevant characteristics of each of the studies included in this review.

2. Field size							
Study (year)	Sample	Aim	SSG format	Field size (m)	Area per player (m ²)	Training programme	Variables analysed
Moreira et al. (2020)	18 players	To compare the influence of manipulating total and relative area per player on tactical behaviour	3 vs 3	36 x 27	162	4 x 4'/4'	General principles of the game measured with FUT-SAT. Team interactions measured with Social Network Analysis applied to Team Sport
	13.1 ± 0.6 years		3 vs 3 + 1	36 x 27	139		
	18 players		3 vs 3 + 1	40 x 29	162		
Nunes et al. 2020b)	20 players	To study the effect of numerical inequalities on physical external load, tactical demands and internal load	4 vs 2	30 x 25	125	4 x 4'/4'	External load and tactical actions measured with GPS and ZEPP Player Soccer System. Internal load measured with Borg Scale
	22.3 ± 2.0 years		4 vs 3		107.1		
	71.4 ± 7.0 kg		4 vs 4		93.7		
	177.1 ± 6.8 cm		4 vs 5		83.3		
	12.1 exp.		4 vs 6		75		
Olthof et al. (2018)	148 players 12-18 years	To analyse the influence of different field sizes on young players	GK + 4 vs 4 + GK	40 x 30	150	1 x 4'/4'	Spatial positioning measured with LPM
				68 x 47	399.5		
Silva, P. et al. (2015)	24 players 14.5 ± 0.5 years 165.6 ± 7.6 cm 55.6 ± 7.2 kg 6.1 ± 2.0 exp.	To analyse the influence of same field size per player on different field sizes on player coordination	6 vs 6	52.9 x 34.4	152	3 x 6'/4'	Spatial positioning measured with GPS
			7 vs 7	49.5 x 32.2	133		
			8 vs 8	46.7 x 30.3	118		
			9 vs 9	57.3 x 37.1	152		
				57.3 x 37.1	133		
				57.3 x 37.1	118		
Vilar et al. (2014)	15 players 21.8 ± 1.9 years 9.8 ± 4.6 years of experience	To study the influence of field size on ball possession, passes to teammates and goal attempts	5 vs 5	40 x 20	80	3 x 10'/5'	Spatial positioning measured with the TACT programme
				52 x 26	135.2		
				28 x 14	39.2		

Table 1 (Continuation)
 Summary of the most relevant characteristics of each of the studies included in this review.

3. Players' age							
Study (year)	Sample	Aim	SSG format	Field size (m)	Area per player (m ²)	Training programme	Variables analysed
Almeida et al. (2017)	8 players 12.6 ± 0.6 years 4.6 ± 0.5 years of experience 8 players 14.8 ± 0.4 years 6.3 ± 1.5 years of experience	To examine the influence of scoring mode and age on passing actions.	GK + 4 vs 4 + GK	30 x 20	75	18 x 10/5'	Number of passes, passing zones and passing direction recorded by the observational method with the LINCE programme
Barnabé et al. (2016)	12 players 15.2 ± 0.6 years 4.6 ± 0.5 years of experience 12 players 16.3 ± 0.5 years 7 ± 1.4 years of experience 12 players 17.4 ± 0.5 years 8.7 ± 2.8 years of experience	To examine offensive and defensive behaviours in players of different ages	GK + 5 vs 5 + GK	33 x 60	165	1 x 8'	Spatial positioning measured with GPS SPI Pro
Borges et al. (2017)	48 players 14.8 ± 1.5 years 0.5 ± 1.4 differences in somatic maturation	To compare tactical performance, anthropometric measures and physical capacities between groups of varying maturity	GK + 3 vs 3 + GK	36 x 27	108	1 x 4'	Anthropometric measurements (height, weight). Maturation measured through peak growth rate; physical capacities measured with Yo-Yo test, manual pressure test, CMJ test, SJ test and sit-and-reach test; technical-tactical performance measured with FUT-SAT
Brito et al. (2019a)	53 players 6.9 ± 0.7 years 44 players 8.5 ± 0.6 years 41 players 11.2 ± 0.4 years 59 players 13.4 ± 0.5 years	To study the effect of different SSG formats in different age groups (U-8, U-10, U-12 and U-14)	5 vs 5 7 vs 7 9 vs 9 11 vs 11	45.5 x 29 64 x 41 82 x 52 100 x 64	131.9 187.4 236.6 290.0	12 x 30'	Spatial distribution of players by measuring the magnitude of the individual spatial distribution. The area covered per player measured by the players' elliptical space

Table 1 (Continuation)
Summary of the most relevant characteristics of each of the studies included in this review.

3. Players' age							
Study (year)	Sample	Aim	SSG format	Field size (m)	Area per player (m ²)	Training programme	Variables analysed
Castellano et al. (2017)	14 players	To study the influence of different field lengths on SSG 7 vs 7 tasks in U-13 and U-14 players	GK + 6 vs 6 + GK	60 x 40	200	1 x 7'4'	Spatial positioning measured with GPS
	13 ± 0.3 years			50 x 40	167		
	14 players			40 x 40	133		
	14 ± 0.3 years			30 x 40	100		
Clemente et al. (2020a)	16 players	To compare the team dynamics between three age groups (U-13, U-15 and U-18) in SSG 4 vs 4 tasks	GK + 4 vs 4 + GK	30 x 20	75	3 x (4 x 4'/3')	Spatial positioning measured with GPS WIMU PRO
	13.9 ± 0.3 years						
	16 players						
	15.7 ± 0.5 years						
da Costa et al. (2010)	524 players	To examine the relationship between tactical performance and players born in the same four-month period	GK + 3 vs 3 + GK	36 x 27	121.5	1 x 4'	Tactical performance measured with FUT-SAT
	11-17 years						
Folgado. (2015)	10 players	To identify how tactical behaviour varies according to age and different SSG task conditions	GK + 3 vs 3 + GK GK + 4 vs 4 + GK	30 x 20	75	3 x (1 x 8'/6')	Spatial positioning measured with the TACT programme
	8.5 ± 0.5 years				60		
	10 players						
	10.4 ± 0.5 years						
García et al. (2014)	54 players	To observe the behaviour of two age groups (U-9 and U-14) in different SSG formats with player variability	5 vs 5 7 vs 7 9 vs 9	20 x 30	60	18 x 20	Technical-tactical actions recorded by observational method
	U-9 and U-14			30 x 45	96.4		
				45 x 60	150		
Machado et al. (2019)	10 players	To investigate how tactical behaviour varies in different age groups and under different SSG task conditions	GK + 3 vs 3 + GK GK + 4 vs 4 + GK	36 x 27	121.5	9 x 10'/10'	Tactical behaviour measured with Offensive Sequences Characterisation System and Lag Sequential Analysis
	13.5 ± 1.2 years			47.7 x 29.5	140.7		
	10 players						
Martone et al. (2017)	17 players	To evaluate the effect of different areas per player on exercise intensity and technical-tactical actions	3 vs 3 4 vs 4 5 vs 5	20 x 30	66.6	3 x 4'/3'	Heart rate measured with FIT PULSE vers 1.37 TTSports and technical-tactical actions measured with observational tool
	10 ± 0.5 years			30 x 30	150		
	16 players				50		
	13.2 ± 0.2 years				112.6		
					40		
					90		

Table 1 (Continuation)

Summary of the most relevant characteristics of each of the studies included in this review.

3. Players' age							
Study (year)	Sample	Aim	SSG format	Field size (m)	Area per player (m ²)	Training programme	Variables analysed
Moreira et al. (2020)	18 players	To compare the influence of manipulating total and relative area per player on tactical behaviour	3 vs 3	36 x 27	162	4 x 4'/4'	General principles of the game measured with FUT-SAT. Team interactions measured with Social Network Analysis applied to Team Sport
	13.1 ± 0.6 years		3 vs 3 + 1	36 x 27	139		
	18 players		3 vs 3 + 1	40 x 29	162		
Nunes et al. (2020a)	20 players	To study the effect of numerical inequalities in external physical load, tactical demands and internal load	4 vs 2	30 x 25	125	4 x 4'/4'	External load and tactical actions measured with GPS and ZEPP Player Soccer System. Internal load measured with Borg Scale
	22.3 ± 2.0 years		4 vs 3		107.1		
	71.4 ± 7.0 kg		4 vs 4		93.7		
	177.1 ± 6.8 cm		4 vs 5		83.3		
	12.1 ± years of experience		4 vs 6		75		
Olthof et al. (2018)	148 players	To analyse the influence of different pitch sizes (traditional and derived from match format) on young players	GK + 4 vs 4 + GK	40 x 30	150	1 x 4'/4'	Spatial positioning measured with LPM
	12-18 years			68 x 47	399.5		
Olthof et al. (2015)	23 players	To determine tactical behaviours in SSG tasks in two age groups (U-17 and U-19)	GK + 5 vs 5 + GK	40 x 30	100	2 x (12 x 6'/1,5)	Positioning measured with LPM
	15.4 ± 0.7 years						
Praça et al. (2018)	14 players	To present a new analysis between tactical principles of defence and fall-back; to compare defensive cooperation between different age groups and to compare the defensive level between different positions and age groups	3 vs 3	36 x 27	162	2 x 4'/4'	Frequency of technical-tactical actions measured with FUT-SAT and tactical interactions measured with Social Network Visualizer
	13.1 ± 0.6 years						
Reis y Almeida. (2020)	14.3 ± 0.7 years						
	45 players	To compare differences in tactical behaviour between groups of different maturational age	GK 6 vs 3 + GK	36 x 27	121.5	1 x 4'	Somatic maturation measured by distance between age and peak growth rate. Tactical performance measured with FUT-SAT
	13.2 ± 1.1 years						
	23 players						
15 ± 0.8 years							
	10 players						
	15.7 ± 0.8 years						

Table 1 (Continuation)

Summary of the most relevant characteristics of each of the studies included in this review.

4. Number of players							
Study (year)	Sample	Aim	SSG format	Field size (m)	Area per player (m ²)	Training programme	Variables analysed
Abrantes et al. (2012)	16 players 15.7 ± 0.4 years 8.0 ± 1.8 years of experience	To determine cardiac variation, perceived exertion and tactical actions between two SSG situations with different numbers of players	3 vs 3 4 vs 4	20 x 30 20 x 40	100 100	4 x 4'/2'	Heart rate measured with Polar Team System; perceived exertion measured with RPE; technical-tactical actions recorded by observational method
Aguiar et al. (2015)	10 players 18.0 ± 0.6 years 10.2 ± 1.8 years of experience	To compare different tactical behaviours in 2 vs 2, 3 vs 3, 4 vs 4 y 5 vs 5 SSG situations	2 vs 2 3 vs 3 4 vs 4 5 vs 5	28 x 21 35 x 36 40 x 30 44 x 34	147 151.6 150 149.6	3 x 6'/1'	Spatial positioning measured with GPS SPI-PRO
Brito et al. (2019a)	53 players 6.9 ± 0.7 years 44 players 8.5 ± 0.6 years 41 players 11.2 ± 0.4 years 59 players 13.4 ± 0.5 years	To study the effect of different SSG formats in different age groups (U-8, U-10, U-12 and U-14)	5 vs 5 7 vs 7 9 vs 9 11 vs 11	45.5 x 29 64 x 41 82 x 52 100 x 64	131.9 187.4 236.6 290.0	12 x 30'	Spatial distribution of players by measuring the magnitude of the individual spatial distribution. The area covered per player measured by the players' elliptical space
Chung et al. (2019)	10 players 10 players 13.6 ± 0.5 years 4.1 ± 1.4 years of experience	To study the effect of different numbers of players on the attacking and defensive coordination of the general principles of the game	3 vs 3 4 vs 4 5 vs 5	36 x 28	168 126 100.8	1 x 5'/5'	Spatial positioning measured with Qstarsz BT-Q1000Ex
Clemente et al. (2018)	12 players 7.5 ± 0.5 years 2.5 ± 0.5 years of experience	To study the change in frequency of technical-tactical actions between two SSG formats	3 vs 3 6 vs 6	15 x 20 22 x 30	50 55	3 x 3'/2'	Technical-tactical actions measured by observational tool
Cofano et al. (2017)	10 players 15.6 ± 0.5 years 66 ± 7.3 kg 172 ± 5 cm	To evaluate and compare the internal load and frequency of occurrence of some technical-tactical actions	3 vs 3 4 vs 4 5 vs 5	18 x 30 24 x 36 30 x 42	90 108 126	3 x 3-4'/90'' 3 x 3-6'/90'' 3 x 3-6'/90''	Heart rate measured with Polar Electro Oy; perceived exertion measured with RPE; technical-tactical actions recorded by observational method

Table 1 (Continuation)

Summary of the most relevant characteristics of each of the studies included in this review.

4. Number of players							
Study (year)	Sample	Aim	SSG format	Field size (m)	Area per player (m ²)	Training programme	Variables analysed
Folgado. (2014)	10 players 8.5 ± 0.5 years 10 players 10.4 ± 0.5 years 10 players 12.7 ± 0.4 years	To identify how tactical behaviour varies according to age and different SSG task conditions	GK + 3 vs 3 + GK GK + 4 vs 4 + GK	30 x 20	75 60	3 x (1 x 8'6")	Spatial positioning measured with the TACT programme
García et al. (2014)	54 players U-9 and U-14	To observe the behaviour of two age groups (U-9 and U-14) in different SSG formats with player variability	5 vs 5 7 vs 7 9 vs 9	20 x 30 30 x 45 45 x 60	60 96.4 150	18 x 20	Technical-tactical actions recorded by observational method
García Ángulo et al. (2020)	40 players 11.7 ± 0.4 years 2.9 ± 1.1 years of experience	To analyse the effect of reducing the number of players, goal size and field size on tactical behaviour	GK + 7 vs 7 + GK GK + 4 vs 4 + GK	58 x 38 38 x 20 58 x 38 38 x 30	136.7 47.6 220.4 76	2 x 20'/10'	Technical-tactical actions measured with observational tool
González-Víllora et al. (2017)	16 players 11.6 ± 0.8 years 3 ± 1.4 years of experience	To analyse and compare the effect of different SSG formats on heart rate and technical-tactical performance	3 vs 3 5 vs 5	25.7 x 17.1 42.8 x 28.6	73.2 122.4	3 x 5'/3'	Heart rate measured with Polar Team App; technical-tactical actions recorded with TSAP; interactions between teammates recorded with SocNetv
Machado et al. (2019)	10 players 13.5 ± 1.2 years 10 players 16.3 ± 0.5 years	To investigate how tactical behaviour varies in different age groups and under different SSG task conditions	GK + 3 vs 3 + GK GK + 4 vs 4 + GK	36 x 27 47.7 x 29.5	121.5 140.7	9 x 10'/10'	Tactical behaviour measured with Offensive Sequences Characterisation System and Lag Sequential Analysis
Martone et al. (2017)	17 players 10 ± 0.5 years 16 players 13.2 ± 0.2 years	To evaluate the effect of different areas per player on exercise intensity and technical-tactical actions	3 vs 3 4 vs 4 5 vs 5	20 x 30 30 x 30	66.6 150 50 112.6 40 90	3 x 4'/3'	Heart rate measured with FIT PULSE vers 1.37 TTSports and technical-tactical actions measured with observational tool

Table 1 (Continuation)

Summary of the most relevant characteristics of each of the studies included in this review.

4. Number of players							
Study (year)	Sample	Aim	SOG format	Field size (m)	Area per player (m ²)	Training programme	Variables analysed
Silva. B. et al. (2014)	18 players U-18	To compare tactical performance between two SOG formats	GK + 3 vs 3 + GK GK + 6 vs 6 + GK	30 x 19,5 60 x 39	73.1 167.1	1 x 8'	Technical-tactical actions measured with FUT-SAT
Silva P. et al. (2016)	10 players 13-6 ± 0.5 years 4.1 ± 1.7 years of experience	To study how player variation influences inter-player coordination during SOG tasks	3 vs 3 4 vs 4 5 vs 5	36 x 28	168 126 100.8	1 x 5'/5'	Spatial positioning measured with GPS SPI-Pro
5. Game principles							
5.1 Goals							
Almeida et al. (2017)	8 players 12.6 ± 0,6 years 4.6 ± 0 5 years of experience 8 players 14.8 ± 0.4 years 6.3 ± 1.5 years of experience	To examine the influence of scoring style and age on passing actions	GK + 4 vs 4 + GK	30 x 20	75	18 x 10'/5'	Number of passes, passing yards and passing direction recorded by observational method with the LINCE programme
Gonet et al. (2020)	20 players 21.2 ± 1.5 years 13.3 ± 3.2 years of experience	To compare technical-tactical performance and perceived effort between different SOG formats with manipulation of the number of goals	5 vs 5	20 x 25	50	2 x (3 x 4'/2)	Perceived exertion measured with RPE; technical-tactical performance recorded with TSAP and BTS
Serra-Olivares et al. (2015)	21 players 8-9 years	To study tactical behaviours in game representative tasks and tasks with stimulus overload	3 vs 3	30 x 20	100	4 x 2'/2'	Technical-tactical actions measured with GPET
Travassos, et al. (2014)	20 players 24.8 ± 4.1 years	To study how goal modification influences tactical behaviour during SOG tasks	GK + 5 vs 5 + GK 5 vs 5	30 x 25	75	4 x 5'/3'	Spatial positioning measured with GPS SPI-PRO

Table 1 (Continuation)

Summary of the most relevant characteristics of each of the studies included in this review.

5.2 Aim of the task							
Study (year)	Sample	Aim	SSG format	Field size (m)	Area per player (m ²)	Training programme	Variables analysed
Lizana et al. (2015)	24 players U-20	To investigate the technical-tactical differences in SSG tasks according to their aim	GK + 6 vs 6 + GK	52 x 32	208	2 x (1 x 30')	Technical-tactical actions recorded by observational method
Machado et al. (2019)	10 players 13.5 ± 1.2 years 10 players 16.3 ± 0.5 years	To investigate how tactical behaviour varies in different age groups and under different SSG task conditions	GK + 3 vs 3 + GK GK + 4 vs 4 + GK	36 x 27 47.7 x 29.5	121.5 140.7	9 x 10'/10'	Tactical behaviour measured with Offensive Sequences Characterisation System and Lag Sequential Analysis
Serra-Olivares et al. (2015)	21 players 8-9 years	To study tactical behaviours in game representative tasks and tasks with stimulus overload	3 vs 3	32 x 22 20 x 20	117 666	2 x 4'/3'	Technical-tactical actions measured with GPET
5.3 Limit of touches							
Brito et al. (2019b)	35 players 15.1 ± 0.1 years 68.2 ± 9.3 kg 173.4 ± 7.3 cm	To study the influence of the number of touches on the occurrence of technical-tactical actions	GK + 3 vs 3 + GK	36 x 27	121.5	2 x (4 x 4'/4')	Technical-tactical actions measured with FUT-SAT; intra-team interactions recorded with Social Network Analysis
Torreblanca-Martínez et al. (2018)	8 players 21.1 ± 1.5 years 174.7 ± 3.5 cm 71.3 ± 4.7 kg 14.5 years of experience	To analyse the conditional and technical-tactical variables according to the number of touches allowed	4 vs 4	25 x 25	78.1	3 x (2 x 10')	Spatial positioning and physical demands measured with SPI Elite GPS; number of passes, number of dropped balls and percentage of successful passes recorded by observational method

Evaluation of the quality and grouping of research studies

In the SSG research evaluation questionnaire (Sarmento et al., 2018), of the selected articles, none scored 100%; the highest score was 93.75%. No paper scored below 50%; the lowest score was 56.25%. Of the 47 papers evaluated, 21 (44%) were rated as good quality studies. The remaining 26 (56%) were rated excellent quality.

Cohen's Kappa index was calculated for the inter-rater agreement study, with a score of .96.

The papers were grouped into the following categories (Table 1): 1. Imbalanced interactions (n = 13); 2. Playing field dimensions (n = 10); 3. Age of players (n = 17); 4. Number of players (n = 14); 5. Principles of the game (n = 9); these were further subdivided into: 5.1 Goals (n = 4); 5.2 Aim (n = 3); 5.3 Limit of touches (n = 2).

Discussion

The aim of this systematic review was to study the influence of SSG tasks on the technical-tactical behaviour of football players. All the SSG situations studied have caused differences in technical-tactical behaviour. This finding is very valuable for coaches as it will help them in designing Small-Sided tasks that provoke or favour the occurrence of certain actions or behaviours.

In terms of the influence of **imbalanced interactions**, four of the reviewed papers kept the area per player the same: Bach Padilha et al. (2017), Clemente et al. (2014), Moreira et al. (2020), and Sampaio et al., (2014). This could be an influential variable that has not always been taken into account. In the remaining papers, the authors used two ways to create situations of numerical inequalities, such as inside or outside multivalent attacking players (Bach Padilha et al., 2017; Clemente et al., 2014; Moreira et al., 2020; Praça et al., 2016) or creating fixed situations of inequality (Gonçalves et al., 2016; Nunes, et al., 2020a).

Praça et al., (2016) concluded that, in situations of numerical superiority with outside multivalent players, attacking players were distributed by occupying more of the width of the space, whereas, when this superiority occurred with a single inside multivalent player, attacking players were distributed by occupying more spaces in terms of depth. This was corroborated by Bach Padilha et al., (2017) who stated that, in situations of attacking superiority created through the use of multivalent players, attacking players distributed more in depth and width. This pattern was found in work where numerical superiority was permanently established.

Meanwhile, Gonçalves et al. (2016) concluded that, as the number of teammates in superiority increased,

the distance to the team's centre, the distance of the opponents to the team's centre and the distance to the nearest opponent increased. This was explained by the players' tendency to spread out over a larger space, occupying more positions in breadth and depth. Nunes et al., (2020a) found this tendency by observing how players in attacking numerical superiority used more space to maintain possession of the ball.

In situations of defensive numerical inferiority, players tended to group together more and to position themselves in areas closer to their own goal (Bach Padilha et al., 2017; Ric et al., 2016; Sampaio et al., 2014; Travassos et al., 2014).

Another factor studied was the occurrence of technical-tactical actions depending on the context. From the review of the research it was established that in situations of numerical inequality there was a greater number of group technical-tactical actions (Moreira et al., 2020; Nunes, et al., 2020a; Praça et al., 2016). In situations of numerical equality in attacking, players used more individual actions such as penetration (Praça et al., 2016) as teammates were more likely to have an opposing defender nearby, while, in situations of attacking numerical superiority, they utilised a greater number of group technical-tactical actions such as attacking cover or attacking units (Praça et al., 2016) as they were more likely to have unmarked teammates.

In terms of defence, in situations of numerical equality, defenders opted for individual defences and away from their own goal; in situations of inferiority, they opted for gathering closer to the goal and executed more collective defensive actions, such as defensive coverage and playing a high line (Praça et al., 2016).

As a conclusion of this section, in situations of numerical superiority in attacking, the players executed a greater number of group attacking actions and occupied more attacking space both in depth and width, while, in situations of defensive numerical inferiority, the players gathered increasingly closer to their goal and carried out a greater number of group defensive actions.

Regarding the influence of the **field size** on play, of the ten studies grouped under this category, six of them kept the number of participating players stable (Castellano et al., 2017; Frencken et al., 2013; Gollin et al., 2016; Nunes, et al., 2020b; Olthof et al., 2018; Vilar et al., 2014). In the other studies, it is worth noting that they modified the number of participants without taking into account that this alternation implied a modification of the area per player, which obviously influenced the judgement of the results. This was only kept stable in Silvia et al., (2015) study.

The first finding was that, as field size increased, the distance between team's centres also increased (Castellano

et al., 2017; Frencken et al., 2013; Olthof et al., 2018), as well as the distance to the nearest opponent (Silva et al., 2015).

Similarly, when increasing the field size in only one of the depth and breadth dimensions, players tended to spread out towards the increased dimension (Gollin et al., 2016).

In studies by Frencken et al. (2013) in which they analysed the teams' distance and spreading out movements in different area sizes, they found that, in SSG tasks where the pitch size was smaller, the team's centres moved in the same directions, i.e. they moved towards the same spaces.

This may explain why a greater number of technical-tactical actions occurred in Small-Sized situations (García-Ángulo et al., 2020; Martone et al., 2017) since, with less space available, the occurrence of attacking and defensive technical-tactical actions of concentration increased (Moreira et al., 2020). Also, with players heading in a similar direction, the number of lengthy ball possessions was likely to be reduced and the possessions that did occur were of shorter duration (Olthof et al., 2018; Vilar et al., 2014). Possession fluctuations of the ball between teams were more frequent in defensive or attacking technical-tactical actions.

Another factor affected by the size of the pitch was the type of actions that appeared or the players' tendency to play. Olthof et al (2018) concluded that, in smaller pitches, a greater number of transitions occurred, while in larger pitch formats, the attacking tendency was to possess the ball for longer periods of time, which was corroborated by Vilar et al's (2014) study.

To summarise this section, it can be noted that players tended to occupy the space available to them for the course of the game. Likewise, the pitch sizes influenced the number of technical-tactical actions that appeared, which is higher in smaller pitches, and the players' tendency to play, where the duration of possession of the ball was shorter and transitions were more frequent in smaller pitches, while longer periods of ball possession were more frequent in larger pitches.

Most of the research collected in this section regarding the **influence of age** shared other variables (pitched size, number of players, scoring method, etc.) that affected the format of the SSG tasks. Specifically, eight investigations studied the effect of age on technical-tactical behaviour without modifying other variables (Almeida et al., 2017; Barnabé et al., 2016; Borges et al., 2017; Clemente et al., 2020a; Costa et al., 2010; Olthof et al., 2015; Praça et al., 2018; Reis & Almeida, 2020).

Among the findings that were repeated throughout these eight studies, it can be highlighted how, as age increased, the area of the playing field used for attacking

was larger (Barnabé et al., 2016; Clemente et al., 2020a; Reis & Almeida, 2020), thus increasing the distance between team centres (Clemente et al., 2020a; Olthof et al., 2015). These findings were also reflected in other studies, even where other SSG task variables were included or modified (Folgado, 2010; Olthof et al., 2018).

Another finding was the improved occupation and adaptation to variations in the pitch's width by older players (Almeida et al., 2017; Castellano et al., 2017; Folgado, 2010; Machado et al., 2019; Olthof et al., 2015; Reis & Almeida, 2020).

Regardless of the fact that older players tended to make better use of space in both directions, younger players tended to carry out more vertical attacks, looking for a quick arrival to the opponent's goal (Machado et al., 2019), while older players tended to carry out more elaborate attacking actions using the width of the pitch to outplay the opponent (Barnabé et al., 2016; Clemente et al., 2020a; Reis & Almeida, 2020).

In terms of the performance of technical-tactical actions, it was concluded that older players performed a greater number of collective technical-tactical actions (Almeida et al., 2017; Borges et al., 2017; Costa et al., 2010; García et al., 2014; Moreira et al., 2020), while their technical-tactical behaviours and group movement patterns remained unaffected (Barnabé et al., 2016; Brito et al., 2019a; Castellano et al., 2017; Martone et al., 2017; Moreira et al., 2020).

The findings in this case can be summarised as follows: older players occupied the available space better, performing more elaborate and stable tactical actions, while performing a greater number of attacking and defensive group technical-tactical actions.

On the other hand, the **influence of the number of players**, recognising that it would make little sense to vary the number of players without varying the size of the pitch, since the dynamics observed would be very different from those found in a real competitive context. It should be noted that, of all the studies reviewed, only three of them kept the same or similar area sizes per player (Abrantes et al., 2012; Clemente et al., 2018; Folgado, 2010), while it was necessary to take into account the influence of other variables in the findings of the rest of the studies.

From the analysis of the findings found in these three studies, it was observed how, in SSG formats involving fewer players, the number of technical-tactical actions increased (Abrantes et al., 2012; Clemente et al., 2018). This coincides with what has been observed in other studies even when modifying other variables of SSG tasks (García-Ángulo et al., 2020). However, it should be

considered that this refers to the total number of actions since, depending on the type of action, these tend to appear more or less frequently in situations with a greater or lesser number of players.

In SSG formats with fewer players, there was a greater number of technical-tactical actions such as transitions (Machado et al., 2019), defensive tackles (Cofano et al., 2017), penetration, deep attacks, retreat and defensive unity (Martone et al., 2017; Silva et al., 2014). In formats involving a larger number of players, the technical-tactical actions of playing a high line and defensive coverage (Silva et al., 2014) and ball possessions (Martone et al., 2017) were more frequent.

From these findings, it could be deduced that, in situations with a smaller number of players, they tended to perform a greater number of individual technical-tactical actions and to group together in defence, a finding already pointed out in other research (Praça et al., 2016); while, in situations with a larger number of players, there was a greater number of group actions.

In terms of the distribution of players on the pitch, the distance between team centres and the opponents' distance to the team centres increased as the number of players increased (Aguar et al., 2015; Folgado, 2010). This was explained by the increase in the number of players and the tendency to occupy a larger playing surface as the number of players increased (Brito et al., 2019a; Chung et al., 2019; Silva et al., 2016). Furthermore, in SSG tasks involving a more players, players tended to perform tactical movements and occupy more fixed areas of space (Brito et al., 2019a). These behaviours were representative of what occurs in real game contexts.

In summary, the findings found in this category are that, in formats involving a larger number of players, players tended to occupy a larger playing surface, show more stable behaviours and occupy limited areas. In addition, with a greater number of players, group technical-tactical actions tended to appear more frequently, while situations with fewer players favoured the appearance of a greater number of technical-tactical actions in general, with a preference for individual technical-tactical actions.

Finally, regarding the **influence of the rules of the game** in the analysis of the subcategory of Goals, the studies could be grouped into: a study with slight modifications to a real game situation, where the number of goals included was reduced or the progression goal was not suppressed (Almeida et al., 2017; Gonet et al., 2020) and with high modifications due to the inclusion of a large number of goals (Serra-Olivares et al., 2015; Travassos et al., 2014).

When comparing Almeida et al's (2017) results and Gonet et al's (2020), it was observed that when there

are more goals, a greater number of shots and goals are produced (Almeida et al., 2017). However, the percentage of success is lower (Gonet et al., 2020). This could be explained by the fact that, in scenarios with more goals, there was more defensive disorganisation, which may give a false sense of good shot selection. Obviously, as the number of goals increased, the total number of goals was higher; however, shot selection efficiency seemed to worsen. The percentage of successful passes was higher in situations with an increased number of goals, facilitated by the defensive disorganisation caused by having to defend more goals. Another noteworthy finding was the increase in the number of passes in the scoring method after receiving on the opponent's line and that these passes occurred in more attacking zones (Almeida et al., 2017).

In reference to the studies carried out with lots of changes to the real situation, a more delayed defence was found, while in attack the attacking wing spaces were used more (Travassos et al., 2014). In addition, higher values were observed in ball possession and joint progress towards the opponent's goal (Serra-Olivares et al., 2015), as well as a higher number of missed passes (Gonet et al., 2020) in situations with a lower number of goals.

Secondly, in relation to the study of the subcategory aim of the task, it should be noted that, as expected, in all the tasks where, through provocation rules, the objective was to maintain possession of the ball, the number of passes was higher and the possessions were longer (Lizana et al., 2015; Machado et al., 2019). However, an improved percentage of decision-making and execution was obtained in unmodified tasks or tasks whose objective was to progress towards the opponent's goal (Serra-Olivares et al., 2015), which is the aim of a real game scenario, which is none other than scoring a goal.

Finally, regarding the analysis of the subcategory limit of touches, in both studies the results showed that, in situations with a limit of touches per tackle, there was a higher percentage of errors (Brito et al., 2019b; Torreblanca-Martínez et al., 2018), a higher number of intra-team interactions and a higher occupation of the playing surface in SSG situations with a limit of touches per tackle (Brito et al., 2019b).

To summarise this section, it can be established that certain modifications to the rules of the game lead to certain technical-tactical behaviours. However, the success of decision making or correct actions may be reduced. The coach must be aware of these variables in order to decide whether or not to adopt these modifications according to the desired aim.

As limitations of the study, the possibility of a certain information bias is recognised, as the PRISMA guide recommends the inclusion of articles not yet published

by requesting the facilitation of authors with expertise in the subject, as well as the inclusion of works whose objective is not to be published or which have not been accepted for publication.

As possible lines of research, it should be noted that the studies discussed investigate the technical-tactical behaviour in different SSG formats without evaluating whether the effects shown have a transfer and how this is in real game situations. Therefore, future studies are recognised as being of great interest where, after carrying out studies in certain formats to increase certain technical-tactical behaviours, these would be evaluated in real game situations.

In conclusion, the aim of this systematic review is to study the influence of SSG tasks on players' technical-tactical behaviour. All the modifications and variables analysed have caused differences in technical-tactical behaviour, which is useful information for coaches as it will help them to design Small-Sided tasks that encourage or facilitate the appearance of certain desired behaviours or actions.

References

Abrantes, I., Nunes, I., Maças, M., Leite, M., & Sampaio, J. (2012). Effects of the Number of Players and Game Type Constraints on Heart Rate, Rating of Perceived Exertion, and Technical Actions of Small-Sided Soccer Games. *The Journal of Strength and Conditioning Research*, 26(4), 976-981. <https://doi.org/10.1519/JSC.0b013e31822dd398>

Aguiar, M., Gonçalves, B., Botelho, G., Lemmink, K., & Sampaio, J. (2015). Footballers' movement behaviour during 2-, 3-, 4- and 5-a-side small-sided games. *Journal of Sports Sciences*, 33(12), 1259-1266. <https://doi.org/10.1080/02640414.2015.1022571>

Almeida, C. H., Volossovitch, A., & Duarte, R. (2017). Influence of scoring mode and age group on passing actions during small-sided and conditioned soccer games. *Human Movement*, 18(5), 125-134. <https://doi.org/10.5114/hm.2017.73621>

Bach Padilha, M., Guilherme, J., Serra-Olivares, J., Roca, A., & Teoldo, I. (2017). The influence of floaters on players' tactical behaviour in small-sided and conditioned soccer games. *International Journal of Performance Analysis in Sport*, 17(5), 721-736. <https://doi.org/10.1080/24748668.2017.1390723>

Barnabé, L., Volossovitch, A., Duarte, R., Ferreira, A. P., & Davids, K. (2016). Age-related effects of practice experience on collective behaviours of football players in small-sided games. *Human Movement Science*, 48, 74-81. <https://doi.org/10.1016/j.humov.2016.04.007>

Borges, P. H., Andrade, M. O. C., Rechenchosky, L., da Costa, I. T., Teixeira, D., & Rinaldi, W. (2017). Desempenho tático, antropometria e capacidades físicas de jovens futebolistas: comparação entre diferentes grupos maturacionais. *Journal of Physical Education*, 28(1), e-2826. Retrieved from <https://periodicos.uem.br/ojs/index.php/RevEducFis/article/view/30182>

Brito, Á., Roriz, P., & Garganta, J. (2019a). Positioning and displacement patterns of young players during 5v5, 7v7, 9v9, and 11v11 soccer matches. *Journal of Human Sport and Exercise*, 15(4), 904-917. <https://doi.org/10.14198/jhse.2020.154.17>

Brito E. S. R., Bredt, S. D. G. T., Greco, P. J., Clemente, F., Teoldo, I., & Praça, G. M. (2019b). Influence of limiting the number of ball touches on players' tactical behaviour and network properties during football small-sided games. *International Journal of Performance Analysis in Sport*, 19(6), 999-1010. <https://doi.org/10.1080/24748668.2019.1689751>

Castellano, J., Fernández, E., Echeazarra, I., Barreira, D., & Garganta, J. (2017). Influencia de la longitud del campo en los comportamientos inter e intra-equipo en jóvenes jugadores de fútbol. *Anales de Psicología / Annals of Psychology*, 33(3), 486-496. <https://doi.org/10.6018/analesps.33.3.271051>

Chung, D., Carvalho, T., Casanova, F., & Silva, P. (2019). Number of players manipulation effect on space and concentration principles of the game representativeness during football small-sided and conditioned games. *Journal of Physical Education and Sport*, 19(January), 381-386. <https://doi.org/10.7752/jpes.2019.s2057>

Clemente, F., Castillo, D., & Los Arcos, A. (2020a). Tactical Analysis According to Age-level Groups during a 4 vs. 4 Plus Goalkeepers Small-sided Game. *International Journal of Environmental Research and Public Health*, 17(5). <https://doi.org/10.3390/ijerph17051667>

Clemente, F., Afonso, J., Castillo, D., Arcos, A. L., Silva, A. F., & Sarmento, H. (2020b). The effects of small-sided soccer games on tactical behavior and collective dynamics: A systematic review. *Chaos, Solitons and Fractals*, 134, 109710. <https://doi.org/10.1016/j.chaos.2020.109710>

Clemente, F., Chen, Y.-S., Bezerra, J. P., Guiomar, J., & Lima, R. (2018). Between-format differences and variability of technical actions during small-sided soccer games played by young players. *Human Movement*, 2018(5), 114-120. <https://doi.org/10.5114/hm.2018.83103>

Clemente, F., Wong, D. P., Martins, F. M. L., & Mendes, R. S. (2014). Acute Effects of the Number of Players and Scoring Method on Psychological, Physical, and Technical Performance in Small-sided Soccer Games. *Research in Sports Medicine*, 22(4), 380-397. <https://doi.org/10.1080/15438627.2014.951761>

Cofano, G., Sannicandro, I., & Cofano, G. (2017). Small-Sided Games : Analysis of the Internal Load and Technical Skills in Young Soccer Players. *International Journal of Science and Research*. 6(March), 735-739. <https://doi.org/10.21275/ART20171583>

da Costa, I. T., Garganta, J., Greco, P. J., Mesquita, I., & Seabra, A. (2010). Influence of Relative Age Effects and Quality of Tactical Behaviour in the Performance of Youth Soccer Players. *International Journal of Performance Analysis in Sport*, 10(2), 82-97. <https://doi.org/10.1080/24748668.2010.11868504>

Coutinho, D., Gonçalves, B., Travassos, B., Abade, E., Wong, D. P., & Sampaio, J. (2019). Effects of pitch spatial references on players' positioning and physical performances during football small-sided games. *Journal of Sports Sciences*, 37(7), 741-747. <https://doi.org/10.1080/02640414.2018.1523671>

Coutinho, D., Gonçalves, B., Travassos, B., Folgado, H., Figueira, B., & Sampaio, J. (2020). Different marks in the pitch constraint youth players' performances during football small-sided games. *Research Quarterly for Exercise and Sport*, 91(1), 15-23. <https://doi.org/10.1080/02701367.2019.1645938>

Folgado, H. (2010). Towards an Understanding of Youth Football Teams Tactical Performance by Analysis of Collective Positional Variables During Small-Sided Game. *Dissertacao de Mestrado em Ciencias do Desporto. Universidade de Trás-os-montes e Alto Douro*.

Folgado, H., Lemmink, K. A., Frencken, W., & Sampaio, J. (2014). Length, width and centroid distance as measures of teams tactical performance in youth football. *European journal of sport science*, 14(sup1), S487-S492. <https://doi.org/10.1080/17461391.2012.730060>

Frencken, W., Van Der Plaats, J., Visscher, C., & Lemmink, K. (2013). Size matters: Pitch dimensions constrain interactive team behaviour in soccer. *Journal of Systems Science and Complexity*, 26(1), 85-93. <https://doi.org/10.1007/s11424-013-2284-1>

García-Angulo, A., Palao, J. M., Giménez-Egido, J. M., García-Angulo, F. J., & Ortega-Toro, E. (2020). Effect of the Modification of the Number of Players, the Size of the Goal, and the Size of the Field in Competition on the Play Actions in U-12 Male Football. *International Journal of Environmental Research and Public Health*, 17(2). <https://doi.org/10.3390/ijerph17020518>

García, J. D. C., Refoyo-Román, I., Calleja-González, J., & Dellal, A. (2014). Quantification and Analysis of Offensive Situations in Different Formats of Sided Games in Soccer. *Journal of Human Kinetics*, 44(1), 193-201. <https://doi.org/10.2478/hukin-2014-0125>

- Gollin, M., Alfero, S., & Daga, A. (2016). Manipulation of Playing Field's Length/Width Ratio and Neutral Players' Positioning: Activity Profile and Motor Behavior Demands during Positional Possession Soccer Small Sided Games in Young Elite Soccer Players. *International Journal of Sports Science*, 6(3), 106–115. <http://article.sapub.org/10.5923/j.sports.20160603.07.html>
- 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>
- Gonet, D. T., Bezerra, L. O., dos Reis, M. A. M., & Vasconcellos, F. V. do A. (2020). Effect of small-sided games with manipulation of small targets on the perceived exertion and tactical and technical performance of college soccer players. *Revista Brasileira de Cineantropometria & Desempenho Humano*, 22. http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1980-00372020000100301&nrm=iso
- González-Villora, S., Clemente, F. M., Martins, F. M. L., & Pastor-Vicedo, J. C. (2017). Effects of regular and conditioned small-sided games on young football players' heart rate responses, technical performance and network structure. 18 (5) special/issue: 135-145. <https://doi.org/10.5114/hm.2017.73618>
- Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P. A., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The PRISMA Statement for Reporting Systematic Reviews and Meta-Analyses of Studies That Evaluate Health Care Interventions: Explanation and Elaboration. *PLOS Medicine*, 6(7). <https://doi.org/10.1371/journal.pmed.1000100>
- Lizana, C. J. R., Reverdito, R. S., Brenzikofer, R., Vaz Macedo, D., Misuta, M. S., & Scaglia, A. J. (2015). Technical and tactical soccer players' performance in conceptual small-sided games. *Motriz: Revista de Educação Física*, 21(3), 312–320. <https://doi.org/10.1590/S1980-65742015000300013>
- Machado, J. C., Ribeiro, J., Palheta, C. E., Alcântara, C., Barreira, D., Guilherme, J., Garganta, J., & Scaglia, A. J. (2019). Changing Rules and Configurations During Soccer Small-Sided and Conditioned Games. How Does It Impact Teams' Tactical Behavior? *Frontiers in Psychology*, 10(JULY). <https://doi.org/10.3389/fpsyg.2019.01554>
- Martone, D., Giacobbe, M., Capobianco, A., Imperlini, E., Mancini, A., Capasso, M., Buono, P., Orrù, S. (2017) Exercise Intensity and Technical Demands of Small-Sided Soccer Games for Under-12 and Under-14 Players: Effect of Area per Player. *Journal of Strength and Conditioning Research*: June 2017 - Volume 31 - Issue 6 - p 1486-1492. <https://doi.org/10.1519/JSC.0000000000001615>
- Moreira, P. E. D., Barbosa, G. F., Murta, C. D. C. F., Pérez Morales, J. C., Bredt, S. D. G. T., Praça, G. M., & Greco, P. J. (2020). Network analysis and tactical behaviour in soccer small-sided and conditioned games: influence of absolute and relative playing areas on different age categories. *International Journal of Performance Analysis in Sport*, 20(1), 64–77. <https://doi.org/10.1080/24748668.2019.1705642>
- Navarro-Adelantado, V. (2002). El afán de jugar: teoría y práctica de los juegos motores (Vol. 24). *INDE*.
- Nunes, N. A., Gonçalves, B., Coutinho, D., & Travassos, B. (2020a). How Numerical Unbalance Constraints Physical and Tactical Individual Demands of Ball Possession Small-Sided Soccer Games. *Frontiers in Psychology*, 11(July). <https://doi.org/10.3389/fpsyg.2020.01464>
- Nunes, N. A., Gonçalves, B., Davids, K., Esteves, P., & Travassos, B. (2020b). How manipulation of playing area dimensions in ball possession games constrains physical effort and technical actions in under-11, under-15 and under-23 soccer players. *Research in Sports Medicine*, 00(00), 1–15. <https://doi.org/10.1080/15438627.2020.1770760>
- Olthof, S. B. H., Frencken, W. G. P., & Lemmink, K. A. P. M. (2015). The older, the wider: On-field tactical behavior of elite-standard youth soccer players in small-sided games. *Human Movement Science*, 41, 92–102. <https://doi.org/10.1016/j.humov.2015.02.004>
- Olthof, S. B. H., Frencken, W. G. P., & Lemmink, K. A. P. M. (2018). Match-derived relative pitch area changes the physical and team tactical performance of elite soccer players in small-sided soccer games. *Journal of Sports Sciences*, 36(14), 1557–1563. <https://doi.org/10.1080/02640414.2017.1403412>
- Ometto, L., Vasconcellos, F. V. A., Cunha, F. A., Teoldo, I., Souza, C. R. B., Dutra, M. B., O'Sullivan, M., & 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>
- Parlebas, P. (2020). The Universals of Games and Sports. *Frontiers in Psychology*, 11, 593877. <https://doi.org/10.3389/fpsyg.2020.593877>
- Pons, E., Martín-García, A., Guitart, M., Guerrero, I., Tarragó, J.R., Seirul-lo, F., Cos, F. (2020). Training in Team Sports: Optimising Training at FCB. *Apunts Educación Física y Deportes*, 142, 55-66. [https://doi.org/10.5672/apunts.2014-0983.es.\(2020/4\).142.07](https://doi.org/10.5672/apunts.2014-0983.es.(2020/4).142.07)
- Praça, G. M., Sousa, R. B., Bredt, S. da G. T., Clemente, F. M., Teoldo, I., Castro, H. de O., Costa, G. D. C. T., & Moreira, P. E. D. (2018). Interações defensivas em pequenos jogos no futebol: uma abordagem integrada dos princípios táticos fundamentais e da social network analysis. *Revista Brasileira de Cineantropometria e Desempenho Humano*, 20(5), 422–431. <https://doi.org/10.5007/1980-0037.2018v20n5p422>
- Praça, G. M., Costa, C. L. A., Costa, F. F., de Andrade, A. G. P., Chagas, M. H., & Greco, J. P. (2016). Tactical behavior in soccer small-sided games: influence of tactical knowledge and numerical superiority. *Journal of Physical Education (Maringá)*, 27(1), 1–12. <https://doi.org/10.4025/jphyseduc.v27i1.2736>
- Práxedes, A., A. Moreno, J. Sevil, D. Pizarro, and F. Del Villar. (2016). "Effect of Equal and Unequal Numbers of Players in Small-Sided Football Games on Tactical Performance in Young Players." *Journal of Sport Pedagogy and Research* 2 (1): 22–29. http://www.ipg.pt/scpd/files/JSPPR_2_1.pdf
- Reis, M. A. M. D., & Almeida, M. B. (2020). The role of somatic maturation in the tactical effectiveness, efficiency and variability of young soccer players. *International Journal of Performance Analysis in Sport*, 20(2), 305–321. <https://doi.org/10.1080/24748668.2020.1743165>
- 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>
- Ros, V. L., & Oliva, F. J. C. (2005). La enseñanza integrada técnico-táctica de los deportes en edad escolar. Explicación y bases de un modelo. *Apunts Educación física y deportes*, (79), 40-48.
- Sampaio, J. E., Lago, C., Gonçalves, B., Maças, V. M., & Leite, N. (2014). Effects of pacing, status and unbalance in time motion variables, heart rate and tactical behaviour when playing 5-a-side football small-sided games. *Journal of Science and Medicine in Sport*, 17(2), 229–233. <https://doi.org/10.1016/j.jsams.2013.04.005>
- Sarmiento, H., Clemente, F. M., Harper, L. D., da Costa, I. T., Owen, A., & Figueiredo, A. J. (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>
- Serra-Olivares, J., González-Villora, S., & García-López, L. M. (2015). Effects of modification of task constraints in 3-versus-3 small-sided soccer games. *South African Journal for Research in Sport, Physical Education and Recreation*, 37(2), 119–129.
- Silva, B., Garganta, J., Santos, R., & Teoldo, I. (2014). Comparing Tactical Behaviour of Soccer Players in 3 vs. 3 and 6 vs. 6 Small-Sided Games. *Journal of Human Kinetics*, 41(1), 191–202. <https://doi.org/10.2478/hukin-2014-0047>

- Silva, P., Esteves, P., Correia, V., Davids, K., Araújo, D., & Garganta, J. (2015). Effects of manipulations of player numbers vs. field dimensions on inter-individual coordination during small-sided games in youth football. *International Journal of Performance Analysis in Sport*, 15(2), 641–659. <https://doi.org/10.1080/24748668.2015.11868821>
- Silva, P., Vilar, L., Davids, K., Araújo, D., & Garganta, J. (2016). Sports teams as complex adaptive systems: manipulating player numbers shapes behaviours during football small-sided games. *SpringerPlus*, 5(1), 1–10. <https://doi.org/10.1186/s40064-016-1813-5>
- Torreblanca-Martínez, V., Cordero-Ojeda, R., & González-Jurado, J. A. (2018). Análisis de variables condicionales y técnico-tácticas mediante juegos reducidos en futbolistas semiprofesionales (Analysis of physical and technical-tactical demands through small-sided games in semi-professional football players). *Retos*, 2041(35), 87–90. <https://doi.org/10.47197/retos.v0i35.59448>
- 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): e0168866. <https://doi.org/10.1371/journal.pone.0168866>
- 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>
- Vilar, L., Duarte, R., Silva, P., Chow, J. Y., & Davids, K. (2014). The influence of pitch dimensions on performance during small-sided and conditioned soccer games. *Journal of Sports Sciences*, 32(19), 1751–1759. <https://doi.org/10.1080/02640414.2014.918640>

Conflict of interests: the authors have not declared any conflict of interest.



© Copyright Generalitat de Catalunya (INEFC). This article is available at the URL <https://www.revista-apunts.com/en/>. This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. The images or other third party material in this article are included in the article's Creative Commons license, unless indicated otherwise in the credit line; if the material is not included under the Creative Commons license, users will need to obtain permission from the license holder to reproduce the material. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>