

# Small-Sided Games and Technical Skills in Soccer Training: Systematic Review and Implications for Sport and Physical Education Practitioners

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**Abstract:** High-level of technical skills and tactical behaviour are key factors for an optimal performance in soccer games. About the most used and innovative training methods, the small-sided games (SSGs) seem to be a worthy and valid methodology to train simultaneously many skills by reproducing several conditions of a real match. Accordingly, the aim of this study was to conduct a systematic review of the available literature to lead an improved understanding in the usefulness of SSGs for improving technical skills in soccer. To ensure a rigorous and reliable approach, the review was performed according to PRISMA (Preferred Reporting Items for Systematic review and Meta-analyses) guidelines. 1031 records were initially identified, but only 26 studies were further included in the review. Moreover, other two studies were added after a check of the bibliography of two major reviews. So, each of these studies was analysed according to the aforementioned guidelines and using inclusion criteria related to SSG and training in soccer. The current analysis provided several indications and recommendations for coaches and trainers of soccer teams in order to improve several technical skills by means of the use of SSGs. Furthermore, several evidences for using SSGs in school environment are also provided.

**Key words:** Soccer training, technical analysis, young talent identification, didactics of team sport.

## 1. Introduction

Soccer is as a situation sport where success depends on several factors such as physiological demands, technical skills, and tactical behaviour [1], but it is also a team sport discussed throughout the physical education classes in secondary level schools [2]. By considering its complexity, the training methods used the most in previous years were oriented to manage such performance factors distinctly [3]. Accordingly, the training programs were often based on the preliminary use of exercises without the ball to develop both aerobic and anaerobic abilities as crucial in determining the best performance [4, 5]. This training mode causes considerable improvements at the physiological level, but it needs a lot of time and it

neglects the training of specific technical and tactical skills [6]. On the other hand, the technical and tactical level of proficiency seems to be discriminant factors for profiling offensive processes [7-9] and winning international competition [10]. Accordingly, the multiple requests of the modern game have prompted coaches and sports scientists looking for new methods and exercises, which are able to simultaneously improve physical capacities, and technical and tactical skills of the players. The small-sided games (SSGs), also called skill-based conditioning games [11] or game-based training [12], are games played on smaller fields, with adapted rules and with a number of players often lower than the ones required by regular sport references [13, 14]. These exercises seem to originate from the games that children played on street, in which they were often forced to change the rules to fit the space or to the number of available players [13]. As training method, it integrates all the specific needs of

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football and represents a useful solution that makes efficient the training processes. In fact, assuming that the greatest gains are achieved when training simulates the real demands of the competition [15, 16], the SSGs allow the coaches to develop technical and tactical skills of the player and simultaneously causes an improvement of physiological parameters by increasing endurance, agility, and strength [13, 17]. Nowadays, these exercises are often incorporated into training processes and are used in various formulas, depending on the aims set by coaches and technical staffs [18]. Since, these ones can modify the training intensity by changing the rules of the game and manipulating other factors such as the number of the player and the size of the field [6, 13]. However, whilst the physiological benefits of the SSGs were widely discussed in literature through research papers and systematic reviews [13, 19], the relationship between the use of SSGs in the soccer training and the technical and tactical aspects is less acknowledged. For instance, Clemente and colleagues [16] and Michailidis [6] provided such reflections about the use of SSGs training technical skills in soccer players through literature reviews, but they did not use a systematic and reliable approach to performed such revisions. By keep in mind these limitations, the aim of this study was to review the literature by means of a valid and reliable approach (i.e., PRISMA) to better understand the influence of several factors related to the SSGs methodology on the technical levels of soccer players.

## 2. Methods

A systematic review of the available literature about the use of SSGs for training technical skills was conducted according to PRISMA (Preferred Reporting Items for Systematic review and Meta-Analyses) guidelines [20]. With the aim to ensure the quality of articles, the research was conducted on two different databases, SPORTDiscus and Google Scholar, in the period between September and November 2016 and

using the words *small-sided games* associated with the terms *soccer* or *football*, and *technical skills*. The following inclusion criteria were used for choosing such articles: (1) reviewed by experts; (2) written in English language; (3) written in the period between 2000 and 2016. Therefore, studies needed to have the following characteristics: (a) provide for a training process with small-sided games; (b) investigate factors related to the technical responses of the players; (c) include analysis of the technical skills of the players of any age or experienced level. Instead, the studies were excluded from the first collection if: (1) the reference sport was not football or soccer; (2) they did not include any relevant data; (3) they were conference abstracts and citations.

## 3. Results

The initial research identified 1031 studies from the aforementioned databases: 81 studies were collected from SPORTDiscus and 950 from Google Scholar. These papers were processed to eliminate duplicates and screened for relevance based on their title and abstract, resulting in the exclusion of 988 studies (including 3 reviews). The full-text of the remaining 43 articles was then read in order to conduct a more detailed analysis and another 19 articles were rejected. Therefore, at the end of the screening procedure only 24 articles remained for the current systematic review. After in-depth analysis of these manuscripts, two more studies [15, 21] were selected from the reference lists of two relevant reviews [6, 16] and were reviewed within the aforementioned 24 research papers. Overall, 26 studies were selected for the current systematic review.

## 4. Discussion

Over past two decades, and particularly in the last five years, the effects of the SSGs on the technical level of soccer players have been addressed by manipulating several factors (i.e., number of players, field size) of this training methodology. The following discussion

has been organized according to such factors.

#### 4.1 Small-Sided Games Format

Table 1 presents the characteristics of the studies which addressed the effects of the SSGs formats (i.e., number of players) on the technical skills.

The common evidence from these studies seems to be the inverse relationship between the number of players and the frequency of technical events. Jones and Drust [23] investigated the number of ball contacts by manipulating different game formats (i.e., 4vs4 and 8vs8) and verified a significant increase in this technical skill when the number of players decreased (i.e., mean  $\pm$  standard deviation of contacts for single player was  $36 \pm 12$  in 4vs4 and  $13 \pm 7$  8vs8). Meanwhile, other studies [24, 28] verified that players involved in 4vs4 had many opportunities to make short

passes, dribbling, shooting, and tackle while players seemed to perform long passes and head shots if they were involved in SSGs with high number of players (e.g., 6vs6 and 8vs8). Since the formats with few players are often used within a small field, the greater pressure exerted by the opponents on the player with the ball leads to increase the need to move the ball frequently, perform a dribble to create playing space, and shoot on goal. On the contrary, in the formats with highest field's size, players lead to perform more long passes and hit the ball by head, as shown by Owen and colleagues [28]. Therefore, these results have worthy implications for the coaches and for their training programs. Indeed, they can use the formats with a greater number of players to train the skills of the defenders, because they have to make a valuable number of head shots and defensive actions as

**Table 1 Studies that investigated the effects of changing SSGs formats on technical skills.**

Study	Factor: SSGs Format	Instrument for technical analysis	Technical skills investigated	Main evidences on technical skills
Owen, et al., 2004 [22]	1vs1	Manual notational analysis	Pass, Receive, Turn, Dribble, Header, Tackle, Block, Interception.	An increase in the number of players causes a reduction of technical events for single player.
	2vs2			
	3vs3			
	4vs4			
	5vs5			
Jones & Drust, 2007 [23]	4vs4	Manual notational analysis	Ball contacts.	The technical demands of 4vs4 format are greater than those observed in 8vs8 format. In 3vs3 format the authors detected more short passes, shooting, dribbling, tackles and goals than in 6vs6. In the last format, they identified many head's shots and long passes.
	8vs8			
Katis & Kellis, 2009 [24]	3vs3	Manual notational analysis	Short passing (< 10m), Long passing (> 10m), Dribbling, Shooting, Heading, Tackling.	The number of crosses, dribbling and shots on goal were higher in 3vs3 than in the other formats. None differences were identified among the other formats.
	6vs6			
da Silva, et al., 2011 [25]	3vs3	Manual notational analysis	Ball contacts, Passes, Target Passes, Crosses, Dribbling, Shots on goal, Tackles, Headers.	The number of dribbling, shots, tackles, and ball contacts per player were higher in the 3vs3 while the number of head shots, blocks, interceptions, passes, and receives were higher in 9vs9.
	4vs4			
	5vs5			
Owen, et al., 2011 [17]	3vs3+Gk	Manual notational analysis	Pass, Receive, Turn, Dribble, Header, Tackle, Block, Interception, Ball contacts.	No significant change was identified between the formats.
	9vs9+Gk			
Abrantes, et al., 2012 [26]	3vs3	Manual notational analysis	Passes, Receive, Dribble, Shot, Tackle, Interception Conquered, Received, Lost, and Neutral ball, Passes, Successful shot on goal; Volume of play, Efficiency index, Performance score.	In 2vs2 format the author detected higher values regarding the volume of the play, the efficiency index and the performance score than in the other formats.
	4vs4			
Clemente, et al., 2014 [27]	2vs2	Team Sport Assessment Procedure (TSAP)	Pass, Receive, Turn, Dribble, Header, Tackle, Block, Interception.	In formats with low number of players the author identified more passes, dribbling and shoots but less head shots.
	3vs3			
	4vs4			
Owen, et al., 2014	SSG	Manual notational analysis	Pass, Receive, Turn, Dribble, Header, Tackle, Block, Interception.	
	MSG			
	LSG			

Gk: goalkeeper; m = meter; SSGs: Small-Sided Games; MSGs: Medium-Sided Games; LSGs: Large-Sided Games.

interception or block. On the other hand, the formats with few players could be used to train the skills of the midfielders or attackers for improving the level of the following skills: possession, dribbling, short passes, and shots. Unbalanced formats of SSGs (i.e., 5vs4 or 8vs7) have also been used by coaches to develop specific technical skills and to perform adapted tactical behaviour [14, 29]. For what concern technical skills, Villar and colleagues [14] addressed the effects' differences of balanced (i.e., 5vs5) against unbalanced (i.e., 5vs4 and 5vs3) formats and observed that the attackers seemed to perform more shots and passes when they were one or two players more than defenders, while the opportunities to perform possession play decreased if the two teams had the same number of players.

#### 4.2 Field Size

The size of the playing field is other factor manipulating in SSGs studies to address the

development of technical skills during training sessions. A summary of these studies is reported in Table 2.

The evidences about the intertwined relationship between the size of field and the development of technical skills are not homogeneous among the current studies. Some previous literatures showed the lack of any significant effects of changing pitch dimensions on the improvement of technical skills [21, 22]. On the other hand, the use of small playing pitch seems to required higher amount of technical demands [19, 30]. Therefore, the current analysis suggests that pitch's size is not an absolutely a main effect for improving technical skills by means of SSGs exercise. Nevertheless, some studies have shown that by reducing the size of the playing field the distance with opponents is decreased while the difficulty for players to keep possession of the ball is increased. Since, players have to provide playing strategies and actions faster and perform technical skills more frequently (i.e., dribbling) to overcome their opponents.

**Table 2 Studies that investigated the effects of changing SSGs size of playing field on technical skills.**

Study	SSGs Format	Factor: sizes (m.)	Skills investigated	Main evidences on technical skills
<i>Owen, et al., 2004</i> [22]	1vs1	5 × 10; 10 × 15; 15 × 20;	Pass, Receive, Turn, Dribble, Header, Tackle, Block, Interception.	No significant difference was found by changing playing field's size.
	2vs2	10 × 15; 15 × 20; 20 × 25;		
	3vs3	15 × 20; 20 × 25; 25 × 30;		
	4vs4	20 × 25; 25 × 30; 30 × 35;		
	5vs5	25 × 30; 30 × 35; 35 × 40;		
<i>Tessitore, et al., 2006</i> [21]	6vs6	30 × 40	The number of actions, of consecutive passes, of players involved in ball-possession.	No significant difference was found by changing playing field's size.
		50 × 40		
<i>Kelly &amp; Drust, 2009</i> [19]	5vs5+Gk	30 × 20	Pass, Receive, Turn, Dribble, Header, Tackle, Interception, Shot, Target Pass.	Changing size of field alters some important technical skills such as the number of tackles and the number of shots.
		40 × 30		
		50 × 40		
<i>Casamichana &amp; Castellano, 2010</i> [30]	5vs5+Gk	275 m <sup>2</sup>	Tackle, Interception, Control, Control and Dribble, Control Dribble and Passes, First-touch pass, Header.	The frequency of technical actions increased if the field's size was reduced.
		175 m <sup>2</sup>		
		75 m <sup>2</sup>		
<i>Hodgson et al., 2014</i> [31]	4vs4	30 × 20	Pass, Turn, Dribble, Shot, Tackle, Header, Interception.	The use of 30 × 20 field imposed greater technical demands than the other two formats.
		40 × 30		
		50 × 40		
<i>Vilar et al., 2014b</i> [32]	5vs5	28 × 14	Ball-possession, Shot, Pass.	By reducing the field dimensions the opportunities of ball-possession are reduced, while the opportunities to shot on goal remain almost unchanged.
		40 × 20		
		52 × 26		

GK: goalkeeper; m = meter.

### 4.3 Playing Rules

Usually, soccer coaches adapt the rules of the games and exercises to modulate the physiological and technical responses of their players. About the use of SSGs, the most common changes include the limitation of ball's touches for player and the demand of specific technical tasks (e.g., score a goal with three or more passes or maintain ball-possession for more than 30 seconds). Table 3 summarizes the most relevant evidences about the use of these strategies when the players perform SSGs.

Although the number of studies about this factor is limited and the authors have analysed different methodological approaches, several remarkable results for practitioners were identified. Dellal and colleagues [33, 34] addressed the effect of changing the number of ball's touches (e.g., one touch, two touches, and free

play) on several technical skills. The authors outlined that if the number of ball's touches was limited the players performed a low number of passes and increased the number of lost balls. In this respect, they suggested the ability to play with few touches is an essential element of modern football strategies and it needs to be trained by means of adequate exercises. Rebelo and colleagues [35] analysed how two different playing strategies (i.e., ball-possession and goal-scoring) impact on several technical skills. First, they verified that ball-possession caused an increase in the intensity of the exercise and more difficult from technical standpoint; accordingly, the players have to move more and quickly to create playing situation useful for maintaining ball-possession. On the contrary, when the main aim was score a goal, the players adopted a behaviour similar to the one used in regular match (i.e., *11vs11*). Therefore, the first case seems to

**Table 3 Studies that investigated the effects of changing SSGs rules on technical skills.**

Study	SSGs Format	Factor: rules	Skills investigated	Main evidences on technical skills
Dellal, et al., 2011 [33]	4vs4	Several number of ball's touches (1 touch, 2 touches, free play)	Number of duels, % of successful passes, Number of ball lost, Total number of ball possession.	The players had more difficulties to perform correctly specific technical actions if the number of ball's touches was limited.
Dellal, et al., 2011 [34]	2vs2 3vs3 4vs4	Several number of ball's touches (1 touch, 2 touches, free play)	Number of duels, % of successful passes, Number of ball lost, Total number of ball possession.	The percentage of successful passes decreased if the number of ball's touches was limited.
Mallo & Navarro, 2007 [15]	3vs3 3vs3 + 2 jolly 3vs3 + Gk	Ball-possession Ball-possession Regular rules	Ball contacts, Short distance passes, Shots on goals.	In the first format, there were more contacts with the ball and shorter passes than in the other twos, but a greater number of errors occurred at the same time.
Rebelo, et al., 2011 [35]	5vs5 + Gk 5vs5	Goal-scoring (GS) vs Ball-possession (BP)	Pass, Receive, Balls-lost.	The rule of ball-possession imposed greater technical demands than the rule of goal-scoring. Most goals, shots on goal and faster pace were performed when the rule of two touches was used. The rule of 4 passes to score supported the development of ball-possession strategy.
Almeida, et al., 2012 [36]	3vs3 + Gk	Free-form 2 touches 4 passes before to score	Simple and Compound Indicators.	Efficiency index, performance score and number of attacks increased if T1 rule was used. T2 rules supported an improvement only in the volume of play index, while T3 rule seem to train mainly the defensive strategy.
Clemente, et al., 2014 [27]	2vs2 3vs3 4vs4	T1 – cross the endline on the opponent's side T2 – cross any of the two goals on each side T3 – cross one goal on each side	Team Sport Assessment Procedure (TSAP).	

GK: goalkeeper; T1: Task condition 1; T2: Task condition 2; T3: Task condition 3.

be the most useful for training technical skills. Almeida and colleagues [36] addressed the effect of different rules on the offensive performance of young players by means of SSGs exercises based on the format “3vs3 with goalkeepers” and proposed three different rules: (a) “Free Form”: the players have to play without following any rules or conditions different from the regular game; (b) “Two touches”: players could perform a maximum of two consecutive touches; (c) “Four passes to score”: the team had to perform at least four consecutive passes before to shoot on goal. The authors identified several evidences for each of the previous formats. By using the rules (a) and (b), the players performed more shoots than the ones performed with the format (c) by using a faster offensive pattern of play. By adopting the rule (c), the offensive processes were characterized by the use of ball-possession strategy supported by the highest level of ball’s touches, passes, and number of players involved in the actions. Therefore, the following elements seem to be the most relevant from the current analysis: the rule of two touches could be used from coaches to increase the opportunities to shoot on goal, develop decision-making skills, and increase the rate of the game, while the rule of the four passes for scoring

could be used to improve the development of action and foster teamwork.

#### 4.4 Exercise Duration

In recent years, some studies have investigated the effects of the duration of exercise and of the recovery period and the number of matches played in a single training session on the development of technical skills. The evidences obtained by changing the aforementioned factors throughout SSGs are summarized in Table 4.

The global analysis of aforementioned studies shows that the duration of exercise does not generate any influence on the technical skills of the players and it is in agreement with the results provided by Tessitore and colleagues [21] and Fanchini and colleagues [37]. However, it seems that the number of matches performed during a training session can cause a reduction in the effectiveness of technical actions. This is what emerged from the study of Dellal and colleagues [38], in which it was possible to observe a progressive reduction in the number of successful passes, and also an increase in the balls lost crossing from first to fourth match.

Recently, McLean and colleagues [40] paid attention

**Table 4 Studies that investigated the effects of changing SSGs duration on technical skills.**

Study	SSGs format	Factor: duration (exercise/rest)	Skills investigated	Main evidences on technical skills
<i>Tessitore et al., 2006</i> [21]	6vs6	3’/15’ 8’/end	Number of actions, of consecutive passes, of players involved in ball-possession.	No significant differences were identified changing the ratio between exercise duration and rest.
<i>Fanchini, et al., 2010</i> [37]	3vs3	2’/4’ (active) 4’/4’ (active) 6’/4’ (active)	Passes, Unsuccessful passes, Successful passes, Dribbling, Head Shot, Turn, Interception, Tackle, Shoots, Shoots on target.	No significant differences were identified changing the ratio between exercise duration and rest.
<i>Dellal, et al., 2012*</i> [38]	2vs2 3vs3 4vs4	2’/3’ (passive) 2’/3’ (passive) 2’/end	Number of duels, % of successful passes, Number of lost balls, Number of ball-possession.	Reduction of the number of successful passes and increases in the number of balls lost in all three formats from T1 to T4.
<i>Christopher, et al., 2016</i> [39]	6vs6	8’/no rest 2 × 4’/1’ 4 × 2’/45’’	Passes, Successful passes, Unsuccessful passes, Shots, Shots on target, Goals, Individual possession, Regains.	Highest number of successful passes and fewer errors in the format of 8’. Highest number of shots on goal and goal in the formats of 2’ and 4’, respectively.
<i>McLean, et al., 2016**</i> [40]	3vs3	2’/30’’ 2’/120’’	Ball-possession, Successful passes, Unsuccessful passes, Interception, Tackle, Balls lost.	No difference was found in many of the investigated technical skills.

\*Each format was repeated 4 times (T1, T2, T3 and T4) with 3’ of recovery between each match; \*\*each format was repeated 6 times.

to the influence exerted by different recovery periods in two training sessions based on two-minutes SSGs played for 6 times, separated by 30 or 120 seconds of rest, respectively. The study found several technical skills did not change due to the different recovery periods. Only the duration of the ball-possession was lower in the formats with 120 seconds of recovery, while the number of tackle was greater in the formats with 120 seconds of recovery compared to the formats with 30 seconds of recovery. These results seem to suggest that the increase of recovery period probably allowed players to perform more tackles and consequently to reduce the duration of the ball-possession of a team.

#### *4.5 Other Playing Factors Manipulating in SSGs*

Table 5 summarizes the evidences of few studies which addressed the relationship between SSGs and technical skills by manipulating factors did not discuss in previous sections.

One of the variables analysed in several studies was the experience of the players [25, 41, 42]. Dellal and colleagues [41] verified that amateur players seem to be characterized by less technically proficiency than the professional and it was supported by accounting for the increased number of lost balls and unsuccessful

passes performed throughout the assessment sessions. In addition, this technical difference increased if the the rule of the one or two ball's touches was adopted. These results demonstrate the difficulty of amateur players in maintaining a high technical quality when the rules require a reduction of the ball's touches. Almeida and colleagues [42] carried out a comparison between a group without football experience (N-Exp) and a group with about 4 years of experience (Exp) by analysing the behaviour adopted in offensive phases. The results of the study revealed that the group with high-level of experience performed the longest offensive sequences, with greater number of touches and more players involved, while the group with low-level of experience performed shorter offensive sequences, characterized by actions with few players involved and reduced number of passes. Therefore, a possession-play with the involvement of several players seem the pattern of play used the most by the experienced group, while the counterattack and play alone seem the offensive strategies used by non-experienced players. In a recent study Hůlka and colleagues [43] investigated the influence of the level of opponents on the physiological and technical responses in a 4vs4 SSGs. The study found that when players have faced top level opponents there was

**Table 5 Studies that investigated the effects of several factors of SSGs on technical skills.**

Study	SSG Factor	Skills investigated	Main evidences on technical skills
<i>da Silva, et al., 2011</i> [25]	Experience	Ball contacts, Cross, Head shots, Tackles, Shots on goal, Dribbling, Passes, Targeted passes.	No significant correlations were identified between maturation of the player and the results of technical assessment.
<i>Dellal, et al., 2011</i> [41]	Experience (Amateur vs. Pro)	Duels, Successful passes (%), Balls lost, Number of contacts with the ball in total.	Amateurs performed more balls lost and errors than Pro. Possession play and longer offensive sequences were the main characteristics of the group with high level of experience. Individual play and shorter offensive sequences characterized the pattern of play of the group with low level of experience.
<i>Almeida, et al., 2013</i> [42]	Experience (Exp vs. N-Exp)	Simple and compound indicators.	The low-level teams performed fewer passes and shots and less accuracy in the passes against stronger opponents.
<i>Hůlka, et al, 2015</i> [43]	Opponents Level	Passes, Accuracy of passes, Shots on goal, Tackles, Turnovers	The encouragement of the coach created an atmosphere of tension that negatively influenced the technical performance of the players
<i>Prieto, et al., 2015</i> [44]	Coach Encouragement	Successful passes, Unsuccessful Passes, Interception, Tackle, Head Shots, Control and pass, Control-run and pass.	

Pro: professional players; Exp: high-level of experience; N-Exp: low-level of experience.

a reduction of most of the investigated skills (i.e., accuracy of the passes) compared to the matches where the same players faced teams with similar or low level. For what concern the use of coach encouragement within the SSGs exercises, Prieto and colleagues [44] verified odd evidences, because such encouragement seemed to provide a positive effect on the physiological level but a negative ones on several technical performance, such as level of accuracy and lost balls. These results suggested that without the encouragement of the coach the players performed more effectively skills. Conversely, the presence and the coach's encouragement led to an increase in the intensity of the game and the number of technical mistakes. However, accounting for the low number of studies related to aforementioned factors, further researches are warranted to verify the current analysis and evidences.

## **5. Conclusions and Practical Implications for Coaches, Trainers, and Physical Education Teachers**

The use of the SSGs as soccer training method has growth in the last years and the current review has outlined the intertwined relationship between several factors related the aforementioned training methodology and the relative effect on the improvement of technical skills. In this respect, the current results could represent a worthy and useful background for coaches and trainers who are involved to promote innovative and valid training method for improving the technical level of their players. Since, the coaches and trainers have to modulate accurately several of the factors addressed in this review in order to properly use the SSGs for the aforementioned aim. For what concern the SSG format (i.e., number of players) the current analysis provides doubt evidences, but most of the analysed studies found significant differences between the use of small-sided games and large-sided games format, respectively. To date, there is a widespread consensus among the authors in stating

that the format with a few players increase the opportunities to perform technical processes such as pass the ball, overcome the opponent in dribbling or shoot on goal, while the format with much players increases the opportunities to perform head shots and other defensive actions as block or intercept the ball. Among the SSG formats studied in previous literature, the effect of unbalanced games need to be further addressed because only few studies [14, 29, 32] have analysed the impact of this game situation on technical skills improvement. About the dimension of the size used for performing SSG exercises, the current analysis has provided a wide consensus that the use of small fields causes an increase in the frequency of skills such as dribbling, tackle, and shot on goal, since excessive closeness with the opponent requires speed of thought and execution. On the other hand, the use of large field results in more opportunity to retain possession of the ball. By increasing the sizes of the playing field, players seem to lead the following playing strategies: within the offensive processes they are oriented to search for the best solution to reach the goal, while in the defensive pattern of play they seem to lead the defensive line close to the own goal. Therefore, given the extreme mixture of the current results, the choice of the sizes of the playing field needs to be meticulously studied by each coach in order to best fit their training goals. According to Clemente and colleagues [16], players with less technical proficiency may need of larger sizes fields to improve the execution of certain technical processes without the pressure of the opponent, while players with high level of technical abilities can improve efficiency and speed of execution by means of exercises carried out on fields with reduced sizes and with a high number of opponents and teammates. According to the current analysis, a significant effect on the playing strategies used by the teams seem to be obtained by manipulating the rules of the SSG exercises and this factor seems to be adequate for supporting the teaching process of a new playing behaviour. Finally, the current review reveals that the



duration of the exercise and the recovery period related to the SSGs did not provide significant influence on the training process of technical skills. However, the number of match or series of exercises planned for a training session can induce a reduction in the effectiveness of most of the technical actions (e.g., an increasing of the number of balls lost). Anyway, this evidence must be verified by future researches. Summarizing the evidences proposed in this review, the SSG seems to be used for training and improving technical skills in soccer players. Nevertheless, the amount of factors the coach could manipulate for modifying their exercises supports the need to address more in-depth the specific effect of the SSGs on the technical skill proficiency level by considering the independent and the interactive effects of each factor within the small-sided games during training session.

Concurrently, the development of technical proficiency in team sports is one of the topics addressed by physical education teachers throughout their courses in secondary level schools. Therefore, the current results could represent useful indications for designing teaching and learning processes. According to Gréhaigne and colleagues [2], the small-sided games could be proposed to provide a teaching-learning experience in students aged from 11-12 years old or later. For example, a soccer small-sided games situation could be performed by a group of students (4vs4 + goalkeepers, on large-field (i.e., 50 × 30 m) and with several adapted rules) meanwhile a second group of students assess their schoolmates by using the aforementioned assessment procedure, and then the groups have to change their roles. In this way, the student may concurrently improve their technical skills and acquire theoretical knowledge about the assessment procedure and the best pattern of play needed to perform the best technical task. Furthermore, the SSGs could be used as instruction strategy for teaching several technical skills related to other team sports (i.e., basket, volleyball, handball) by adapting the factor discussed in this review to specific learning

aims.

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