Chapter 6
Adjusting the Design: New Rules to Maximize the Experience

Abstract The aim of this chapter is to provide the information about the implications of changing the rules of small-sided games. By using the data from the most recent studies, a set of conditioned games will be analyzed in their acute effects, particularly in internal and external training load and in the technical and tactical adjustments that depend on the game. Task conditions such as the type of targets or goals, goalkeepers, limits on ball touches, numerical relationship with the opponent or the type of encouragement will be analyzed, helping the coaches to identify the best variables to constrain in the particular contexts.

Keywords Training load · Task constraints · Small-sided and conditioned games · SSG · Drill-based exercises · Soccer · Football · Sports training

6.1 Introduction

The modifications of the format and size of the field are very common (Aguiar et al. 2012; Halouani et al. 2014b; Hill-Haas et al. 2011). Nevertheless, small-sided and conditioned games (SSCGs) are often associated with changes in the rules and the dynamic of the game (Davids et al. 2013). These changes aim to increase the execution of some skills or augment the perception for specific tactical issues (Renshaw et al. 2015). Nevertheless, there are also implications for acute physiological responses and time–motion profile. For that reason, this chapter will show some typical task constraints (or conditions) used by coaches and identify the main results.

This chapter will be organized by regular conditions used in soccer training: (i) different goals/targets; (ii) rules and objective of the game; (iii) the use of goalkeepers; (iv) training regimen; (v) the use of floaters/neutral players; and (vi) coach encouragement. In the end of the chapter a summary of the findings will be presented.

F.M. Clemente, *Small-Sided and Conditioned Games in Soccer Training*,
SpringerBriefs in Applied Sciences and Technology,
DOI 10.1007/978-981-10-0880-1_6

6.2 Changing the Goals

The use of different goals influence the tactical issue in the game and also the type of movements carried out by players. For that reason, this section will show the research carried out about this task condition (Table 6.1). Usually, SSCGs are played without official goals. For that reason, some coaches use small goals and others opt to use lines of goal (to pass through in dribble or to stop the ball). Both conditions influence the acute physiological responses differently.

The first study that compared different games with and without goals were carried out in a 3 versus 3 format (Mallo and Navarro 2008). The authors tested

Table 6.1 Acute physiological effects in different conditions with and without goals

Study	F/SF	Regimen	Condition	HR	BLa^{-1}	RPE [0–10 scale]
Mallo and Navarro (2008)	3 versus 3 33 × 20	3 × 5 min/10 min recovery	Ball possession	173 bpm	–	–
			Jokers (out players)	173 bpm	–	–
			Goals with GK	166 bpm	–	–
Casamichana et al. (2011)	4 versus 4 25 × 32	3 × 4 min/3 min recovery	No goals–ball possession	166.3 bpm	–	–
			Small goals	162.9 bpm	–	–
			Regular goals with GK	161.4 bpm	–	–
Casamichana et al. (2012)	3 versus 3 43 × 30	3 × 6 min/5 min rest	No goals–ball possession	–	–	4.9
			Small goals	–	–	4.2
			Regular goals with GK	–	–	4.1
	5 versus 5 55 × 38		No goals–ball possession	–	–	4.7
			Small goals	–	–	3.5
			Regular goals with GK	–	–	3.3
	7 versus 7 64 × 46		No goals–ball possession	–	–	4.0
			Small goals	–	–	3.6
			Regular goals with GK	–	–	3.0
Halouani et al. (2014a)	3 versus 3 20 × 15	4 × 4 min/2 min recovery	Stop the ball in the line	178 bpm	4.66	7
			Small goals	174 bpm	4.16	6.58

(continued)

Table 6.1 (continued)

Study	F/SF	Regimen	Condition	HR	BLa^{-1}	RPE [0–10 scale]
Clemente et al. (2014b)	2 versus 2 + 2 floaters 19 × 19	3 × 5 min/3 min rest	Line goal	74.98 % HRres	–	–
			Two small goals	81.05 % HRres	–	–
			One small and central goal	83.38 % HRres	–	–
	3 versus 3 + 2 floaters 23 × 23		Line goal	82.06 % HRres	–	–
			Two small goals	84.18 % HRres	–	–
			One small and central goal	81.98 % HRres	–	–
	4 versus 4 + 2 floaters 27 × 27		Line goal	81.27 % HRres	–	–
			Two small goals	80.32 % HRres	–	–
			One small and central goal	83.61 % HRres	–	–

F Format; *SF* Size of the field (m); *HR* Heart rate; BLa^{-1} Blood lactate concentration (mmol/L); *RPE* Rated of perceived exertion; *GK* Goalkeeper

three conditions (see Fig. 6.1): (i) ball possession without goals; (ii) ball possession with two 'jokers' that are outer players that can pass the ball to a player from the team that it was received from; and (iii) game with goals and goalkeepers. The results showed that total distance covered in game with goals was statistically lower and with lower running intensity than the other conditions. Moreover, the game of ball possession without 'jokers' increased the heart rate responses and the time spent in higher effort (Mallo and Navarro 2008).

A study that used 4 versus 4 format (25 × 15 meters) with a regimen of 3 × 15 min/6 min recovery tested the influence of three scoring methods (see Fig. 6.2) on the heart rate fluctuations (Duarte et al. 2010). Results revealed that line goal increased the randomness of heart rate responses. Moreover, line goal also contributes for a more standardized cardiovascular stimulation of the players involved (Duarte et al. 2010).

Differences in heart rate responses between no goal, small goals, and official goals with goalkeepers were found in 4 versus 4 format (Casamichana et al. 2011). Generally, games without goalkeeper statistically increased the heart rate responses. Results found statistical great heart rate responses between central players (defenders and forwards) and external players (defenders and midfielders) in the game

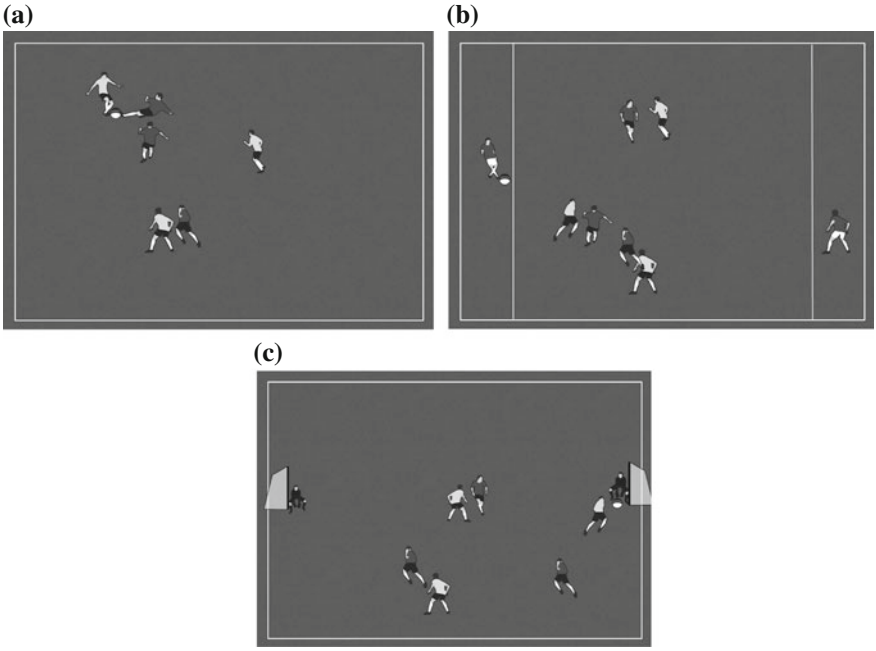

Fig. 6.1 SSCGs with different goals used by Mallo and Navarro (2008): **a** ball possession; **b** ball possession with 'jokers'; and **c** goals with goalkeepers

with small goals. It was also found statistical lower heart rate responses of central players with midfielders in the game are without goals. Finally, central players had statistically lower heart rate responses that the remaining positions in the game with official goals and goalkeepers (Casamichana et al. 2011).

Using 3 formats (3 vs. 3, 5 vs. 5, and 7 vs. 7) it was compared the non-use and the use of small and official goals on the perceived exertion of soccer players (Casamichana et al. 2012). This study confirmed a statistical increase of internal load in tasks without goals, thus following the previous work of the authors in 4 versus 4 format (Casamichana et al. 2011).

The physiological effects of stoping the ball in a line and scoring in small goals were compared in 3 versus 3 format (Halouani et al. 2014b). The results showed that stoping the ball in the line induced statistical greater heart rate responses and blood lactate concentrations than the game with small goals (Halouani et al. 2014b).

Testing the 2 versus 2, 3 versus 3, and 4 versus 4 format in three conditions (line goal, two small goals, and one goal) it was verified that in 2 versus 2 and 3 versus 3 formats players covered greater distances in the game with line goal (Clemente et al. 2014b). It was also found greater heart rate responses in the game with double goals played at 2 versus 2 and 4 versus 4 formats.

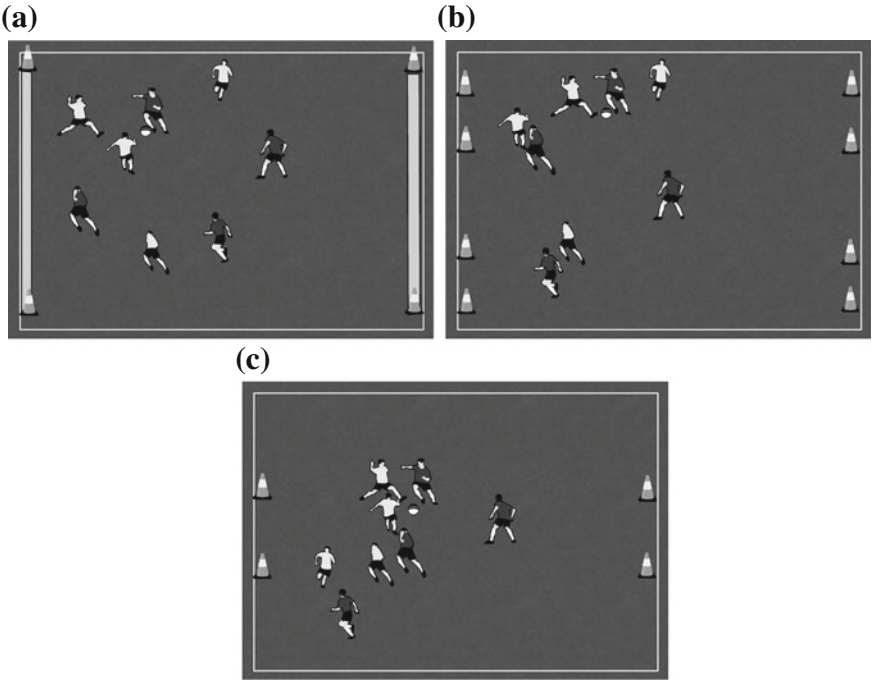

Fig. 6.2 SSCGs with different goals used by Duarte et al. (2010): **a** line goal; **b** double goal; and **c** central goal

The technical performance was only analyzed by two studies (Clemente et al. 2014b; Mallo and Navarro 2008). The study conducted by Mallo and Navarro (2008) revealed that the condition of ball possession without goals increased the contacts with ball and the passes made. On the other hand, the game with goals and goalkeepers resulted in a lower number of passes made.

The study conducted by Clemente et al. (2014b) was inconclusive about the technical effects of different tasks. No statistical evidences were found and the performance varied between the three formats tested (see Table 6.2).

In summary, this section showed that in the majority of the studies it was found the evidence that games without goals increases the heart rate responses, perceives exertion and blood lactate concentration. It was also possible to verify that small goals increase the acute physiological responses in comparison with official goals with goalkeepers. In the case of technical performance the results are inconclusive, nevertheless, there is a small tendency to perform greater volume of skills in conditions without goals.

Table 6.2 Technical performance in different conditions with and without goals

Study	F/SF	Regimen	Condition	Indicator	Indicator	Indicator
Mallo and Navarro (2008)	3 versus 3 33 × 20	3 × 5 min/10 min recovery	Ball possession	20.8 contacts with the ball	16.8 short passes	15.5 % wrong passes
			Jokers (out players)	11.3	10.0	5.3 %
			Goals with GK	12.3	7.5	9.1 %
Clemente et al. (2014b)	2 versus 2 + 2 floaters 19 × 19	3 × 5 min/3 min rest	Line goal	18.33 volume of play	0.22 efficiency index	11.34 performance score
			Two small goals	19.83	0.08	10.72
			One small and central goal	17.50	0.04	9.18
	3 versus 3 + 2 floaters 23 × 23		Line goal	11.88	0.00	5.94
			Two small goals	11.50	0.03	6.04
			One small and central goal	12.25	0.30	6.42
	4 versus 4 + 2 floaters 27 × 27		Line goal	7.70	0.09	4.76
			Two small goals	7.00	0.08	4.30
			One small and central goal	7.30	0.03	3.93

F Format; *SF* Size of the field (m); *GK* Goalkeeper

6.3 Conditioning the Ball Touches

Coaches may limit the number of touches that each player may consecutively perform to increase the speed of decision making and technical performance. Such condition may also influence the intensity of the game and for that reason some studies have been analyzed this task constraint (Aroso et al. 2004; Casamichana et al. 2014; Dellal et al. 2011; Román-Quintana et al. 2013). The main physiological responses found by the studies may be observed in Table 6.3. The study conducted by Aroso et al. (2004) compared free play with three touches limitation in 3 versus 3 format. Tree touches statistically increased the running activity and statistically reduced the time spent in walk and sprint (Aroso et al. 2004). Moreover, three touches had smaller values of heart rate and greater values of blood lactate concentrations and perceived exertion.

Table 6.3 Acute physiological effects in different conditions of ball touches

Study	F/SF	Regimen	Condition	HR	BLa^{-1}	RPE
Aroso et al. (2004)	3 versus 3 30 × 20	3 × 4 min/1 min, 30 s rest	Free Play	81.1 % HRres	4.9	14.5 [0–20 scale]
			Three touches	79.3 % HRres	5.3	15.4 [0–20 scale]
Dellal et al. (2011)	2 versus 2 20 × 15	4 × 2 min/3 min rest	One touch	90.3 % HRmax	3.9	8.2 [0–10 scale]
			Two touches	90.1 % HRmax	3.5	7.7 [0–10 scale]
			Free play	90.0 % HRmax	3.4	7.6 [0–10 scale]
	3 versus 3 25 × 18	4 × 3 min/3 min rest	One touch	90.0 % HRmax	3.8	8.1 [0–10 scale]
			Two touches	89.3 % HRmax	3.3	7.9 [0–10 scale]
			Free play	89.6 % HRmax	3.0	7.5 [0–10 scale]
	4 versus 4 30 × 20	4 × 4 min/3 min rest	One touch	87.6 % HRmax	2.9	8.0 [0–10 scale]
			Two touches	85.6 % HRmax	2.8	7.9 [0–10 scale]
			Free play	84.7 % HRmax	2.9	7.2 [0–10 scale]
Casamichana et al. (2013b)	6 versus 6 + 2 40 × 28	12 min	One touch	93.2 % HRmax	–	–
			Two touches	92.6 % HRmax	–	–
			Free play	90.4 % HRmax	–	–
Román-Quintana et al. (2013)	7 versus 7 with GK 60 × 49	12 min	One touch	89.2 % HRmax	–	–
			Two touches	92.7 % HRmax	–	–
			Free play	90.2 % HRmax	–	–

(continued)

Table 6.3 (continued)

Study	F/SF	Regimen	Condition	HR	BLa^{-1}	RPE
Casamichana et al. (2014)	6 versus 6 60 × 49	2 × 6 min	Two touches	83.8 % HRmax (1st bout) 89.3 % HRmax (2nd bout)	–	–
			Free play	89.0 % HRmax (1st bout) 90.4 % HRmax (2nd bout)	–	–

F Format; *SF* Size of the field (m); *HR* Heart rate; BLa^{-1} Blood lactate concentration (mmol/L); *RPE* Rated of perceived exertion; *GK* Goalkeeper

The heart rate responses were also analyzed in 2 versus 2, 3 versus 3, and 4 versus 4 formats in the conditions of one touch, two touches, and free play (Dellal et al. 2011). The main results revealed that one touch had the greatest heart rate values in 2 versus 2 and 3 versus 3 formats and the greatest blood lactate concentrations and perceived exertions in all formats. Large-sided games of 6 versus 6 and 7 versus 7 were analyzed by Casamichana et al. (2013b, 2014) and Román-Quintana et al. (2013). The conditions of one touch, two touches and free play were compared. In the case of Casamichana et al. (2013b) greater values of heart rate were found in one touch condition. On the other hand, in the study conducted by Román-Quintana et al. (2013) showed that the greatest values were found in two touches condition. Finally, in a comparison between two touches and free play, Casamichana et al. (2014) revealed greater values of heart rate in free play in 6 versus 6 format.

The distance covered by it was also analyzed in the previous studies that compared free play with limitation in ball touches (see Table 6.4). In the study conducted by Dellal et al. (2011) greater values of distance covered were found in one touch condition played at 2 versus 2, 3 versus 3, and 4 versus 4 formats. Moreover, the authors also found greater values of distance covered in high intensities and sprint. On the other hand, studies conducted in 6 versus 6 and 7 versus 7 formats revealed greater values of distance covered in the condition of free play (Casamichana et al. 2013b, 2014; Román-Quintana et al. 2013).

Only two studies (Almeida et al. 2012; Dellal et al. 2011) analyzed the technical performance during games with touches limitations, as far we know. The summary of the results can be found in Table 6.5. Della et al. (2011) revealed that in 2 versus 2 and 4 versus 4 format, free play increased the number of duels and successful passes. In the other hand, the possessions were greater in one touch condition played at all formats. In the other study, conditions of two touches, free play, and obligation of four consecutive passes before finalization were compared in 3 versus

Table 6.4 Time–motion profile in different conditions of ball touches

Study	Participants	SF	Regimen	TD	TD 0-6.9	TD 7.0-12.9	TD 13.0-17.9	TD > 18
Dellal et al. (2011)	2 versus 2 20 × 15	4 × 2 min/3 min rest	One touch	1305.5	–	–	330.0	232.3
			Two touches	1211.8	–	–	271.3	195.1
			Free play	1157.7	–	–	245.4	177.5
	3 versus 3 25 × 18	4 × 3 min/3 min rest	One touch	2247.6	–	–	523.2	397.0
			Two touches	2124.7	–	–	473.9	351.2
			Free play	2013.9	–	–	422.4	315.6
	4 versus 4 30 × 20	4 × 4 min/3 min rest	One touch	3057.3	–	–	638.9	493.2
			Two touches	2814.6	–	–	562.0	438.0
			Free play	2663.6	–	–	482.7	381.8
Casamichana et al. (2013b)	6 versus 6 + 2 40 × 28	12 min	One touch	1295.2	–	–	–	–
			Two touches	1393.9	–	–	–	–
			Free play	1409.7	–	–	–	–
Román-Quintana et al. (2013)	7 versus 7 with GK 60 × 49	12 min	One touch	1226.8	–	–	–	–
			Two touches	1224.9	–	–	–	–
			Free play	1345.2	–	–	–	–
Casamichana et al. (2014)	6 versus 6 60 × 49	2 × 6 min	Two touches	680.7 (1st bout) 683.0 (2nd bout)				
			Free play	716.3 (1st bout) 642.2 (2nd bout)				

F Format; *SF* Size of the field (meters); *TD* Total distance (m); *TD* 0–6.9 Total distance at 0–6.9 km h^{-1}; *TD* 7.0–12.9 Total distance at 7.0–12.9 km h^{-1} *TD* 13.0–17.9 Total distance at 13.0–17.9 km h^{-1} *TD* > 18 Total distance at > 18 km h^{-1}

Table 6.5 Technical performance in different conditions of ball touches

Study	F/SF	Regimen	Condition	Indicator	Indicator	Indicator
Dellal et al. (2011)	2 versus 2 20 × 15	4 × 2 min/3 min rest	One touch	17.1 duels	42.5 % successful passes	50.6 possessions
			Two touches	28.5	60.5 %	41.4
			Free play	26.1	66.4 %	40.9
	3 versus 3 25 × 18	4 × 3 min/3 min rest	One touch	30.9	52.0 %	51.8
			Two touches	28.1	69.9 %	43.7
			Free play	26.8	71.0 %	41.7
	4 versus 4 30 × 20	4 × 4 min/3 min rest	One touch	18.0	49.8 %	41.6
			Two touches	16.5	68.9 %	34.7
			Free play	25.1	73.4 %	31.5
Almeida et al. (2012)	3 versus 3 with GK 40 × 30	2 × 5 min/1 min rest	Free play	2.52 passes	10.22 ball touches	12.63 s duration of ball possession
			Two touches	2.33	5.77	9.52 s
			Four passes[a]	6.16	17.57	20.21 s

F Format; *SF* Size of the field (m); *GK* Goalkeeper
[a]Teams had to perform at least four consecutive passes to finalize the attack

3 format with goalkeeper (Almeida et al. 2012). Results revealed that the obligation of four passes increased the number of passes, ball touches, and duration of ball possession. On the other hand, the smaller values for these indicators were found in two touches condition.

In summary, the majority of the studies suggest that limitation in ball touches increase the heart rate responses, blood lactate concentrations, and perceived exertion. In smaller formats (2 vs. 2 to 4 vs. 4) the limitations in ball touches also increases the distances covered and the intensity of the running. Nevertheless, greater values of distance covered were found in large-sided games (6 vs. 6 and 7 vs. 7). In the case of technical performance, limitation in ball touches decreased the number of duels and successful passes. For that reason, games with touches limitations can be appropriate to exploit the intensity and dynamic of the game but is not adequate to improve technical skills such as passes or even the decision making in young and novice players.

6.4 Type of Marking

The type of defensive marking may constraint the intensity of exercise and also the technical performance. Based on this concept, four studies (as far we analyzed) researched the influence of type of marking during SSCGs (Aroso et al. 2004; Casamichana et al. 2015; Ngo et al. 2012; Sampaio et al. 2007). The physiological responses found on these studies can be found in Table 6.6.

The first study was conducted by Aroso et al. (2004) and compared the 2 versus 2 format (30 × 20 meters) with and without individual marking (man-to-man marking). The task had 3 bouts of 1 min and 30 s with a work-to-rest ratio of 1:1. The results showed that blood lactate concentrations were greater in individual marking (9.7 mmol/L vs. 8.1 mmol/L without individual marking) and the time spent in walking was smaller. The heart rate was lower in individual marking than in free play (75.8 % HRres and 77.1 % HRres, respectively).

The study carried out by Sampaio et al. (2007) found that perceived exertion was statistically greater in man-to-man marking (in 2 vs. 2 and 3 vs. 3 formats), nevertheless, the heart rate responses were greater in free play of 2 versus 2 format than in man-to-man marking. Ngo et al. (2012) also tested the 3 versus 3 format to compare man-to-man and free play marking. With and without goals constraints were also used. Greater values of heart rate responses and perceived exertion were found in man-to-man marking (Ngo et al. 2012).

The fourth study that compared man-to-man marking and free play was conducted for three different formats (3 vs. 3, 6 vs. 6, and 9 vs. 9) (Casamichana et al. 2015). Heart rate responses were greater in man-to-man marking in 3 versus 3 and 9 versus 9 formats. The time–motion analysis revealed that players covered greater distances in man-to-man marking in 3 versus 3 and 6 versus 6 formats. The greater speeds were found in free play in the 6 versus 6 and 9 versus 9 formats.

Cihan (2015) tested three conditions of marking in 3 versus 3 format. The time–motion profile revealed that double man marking condition and man-to-man marking increased the distance covered and the distances covered in high intensity and sprint during the game. Moreover, Cihan (2015) also found that heart rate values, blood lactate concentrations, and perceived exertions were statistically greater than free play.

In summary, the majority of the studies revealed that man-to-man marking increases the acute physiological responses and also the distances covered by players. Players may need to run greater distances to mark the direct opponent and for that reason also increases the physiological load during the exercise. None of the fourth studies analyzed the technical performance.

Table 6.6 Acute physiological effects in man-to-man and free play conditions

Study	F/SF	Regimen	Condition	HR	BLa^{-1}	RPE
Aroso et al. (2004)	2 versus 2 30 × 20	3 × 1 min, 30 s/1 min, 30 s rest	Man-to-man	75.8 % HRres	9.7	16.7 [0–20 scale]
			Free play	77.1 % HRres	8.1	16.2 [0–20 scale]
Sampaio et al. (2007)	2 versus 2 30 × 20	2 × 1 min, 30 s/1 min, 30 s rest	Man-to-man	80.8 % HRmax	–	17.1 [0–20 scale]
			Free play	81.2 % HRmax	–	14.1 [0–20 scale]
	3 versus 3 30 × 20	2 × 3 min/3 min rest	Man-to-man	80.8 % HRmax	–	16.5 [0–20 scale]
			Free play	79.8 % HRmax	–	14.4 [0–20 scale]
Ngo et al. (2012)	3 versus 3 with goal 25 × 18	3 × 4 min/4 min rest	Man-to-man	80.5 % HRres	–	7.1 [0–10 scale]
			Free play	75.7 % HRres	–	6.0 [0–10 scale]
	3 versus 3 no goal 25 × 18		Man-to-man	80.5 % HRres	–	7.4 [0–10 scale]
			Free play	76.1 % HRres	–	6.9 [0–10 scale]

(continued)

Table 6.6 (continued)

Study	F/SF	Regimen	Condition	HR	BLa^{-1}	RPE
Casamichana et al. 2015)	3 versus 3 29 × 19	6 min	Man-to-man	92.6 % HRmax	–	–
			Free play	91.4 % HRmax	–	–
	6 versus 6 40 × 28	6 min	Man-to-man	90.5 % HRmax	–	–
			Free play	93.2 % HRmax	–	–
	9 versus 9 55 × 30	6 min	Man-to-man	89.0 % HRmax	–	–
			Free play	88.9 % HRmax	–	–
Cihan (2015)	3 versus 3 35 × 20	12 min	Man-to-man	84.83 % HRmax	5.75	4.33 [0–10 scale]
			Double man pressure	88.50 % HRmax	7.13	7.16 [0–10 scale]
			Free play	75.00 % HRmax	8.96	2.00 [0–10 scale]

F Format; *SF* Size of the field (m); *HR* Heart rate; BLa^{-1} Blood lactate concentration (mmol/L); *RPE* Rated of perceived exertion

6.5 Exploring the Numerical Unbalance and the Floaters

Floaters can be used to provide numerical superiority to a team with or without the possession of the ball. Five studies analyzed the influence of this condition, as far we know (Bekris et al. 2012; Clemente et al. 2015; Evangelos et al. 2012; Hill-Haas et al. 2010; Sampaio et al. 2014).

The study conducted by Hill-Haas et al. (2010) compared the 3 versus 4, 3 versus 3 (+1 floater), 5 versus 6, and 5 versus 5 (+1 floater) formats. Results found that floaters covered greater distances in small format and completed more sprints in large formats. This can be justified by the frequent changes in ball possession, thus increasing the participation and the activity of floaters.

Greater heart rate values in numerical inferiority were possible to verify in a study that compared the numerical superiority and inferiority during 5 versus 5 format (Sampaio et al. 2014). The authors suggested that that a team in inferiority is required to perform additional work in offense and defense. It was also be possible to verify that numerical inferiority may increase collective decisions of reducing the team area of play and also to decide for prestructured strategical behaviors (Sampaio et al. 2014).

Two studies conducted for the same research team analyzed the effects of using floaters to give numerical superiority during attacking and defensive moments. (Bekris et al. 2012; Evangelos et al. 2012). In the 1-a-side and 4-a-side games, the highest heart rates were observed without a floater player. In the 3-a-side game, the highest heart rates were achieved with a defensive neutral, and in the 2-a-side game, the highest heart rates were observed with an offensive floater (Clemente et al. 2014a). No tendencies were possible to be found from both studies.

Finally, a different study analyzed the heart rate responses of floaters in different formats (1 vs. 1, 2 vs. 2, 3 vs. 3, and 4 vs. 4, with more two floaters in the wings of the field) (Clemente et al. 2015). The highest heart rate responses of floaters were found mostly in the biggest format. The heart rate values of floaters varied between 50 and 56 % of HRreserve and for that reason it can be suggested for very light or recovery workout (Clemente et al. 2015).

In summary, the use of numerical inferiority seems to increase the intensity and acute physiological responses during exercise. Floaters in the game may be constrained to run greater distances. Nevertheless, very light values of intensity may be achieved in floaters that only may act outside of boundaries of the game. In this particular case, the use of floaters may be also used to actively recover from an intense workout. In a example, a coach may prescribe 1 versus 1 + 2 floaters with 4 bouts and a work-to-rest ratio of 1:1. In this case, the players in 1 versus 1 just need to change the positions with the floaters and will participate in an activity during the resting time. With this strategy it can be possible to save some time of training and optimize the transitions and pause between tasks.

6.6 With or Without Encouragement

The use of verbal instructions to encourage the players has been also analyzed as a task condition (Rampinini et al. 2007; Sampaio et al. 2007). The study conducted by Rampinini et al. (2007) compared four formats (3 vs. 3, 4 vs. 4, 5 vs. 5, and 6 vs. 6) of the game with and without coaches' encouragement. The results revealed that with encouragement players had statistically greater heart rate responses, blood lactate concentrations and perceived exertion in all formats of the game. Sampaio et al. (2007) also studied the effect of encouragement in the acute physiological responses at 2 versus 2 and 3 versus 3 formats. The results revealed greater heart rate intensities and perceived exertion in the drills with coaches' encouragement. Both studies suggested that coaches' encouragement might improve the commitment and motivation of players during the task and for that reason increase the intensity of exercise.

6.7 Regimen

SSCGs are commonly used as an intermittent exercise (with bouts and work-to-rest ratios) (Clemente et al. 2014b). A few number of studies compared continuous versus intermittent regimens (Fanchini et al. 2011; Hill-Haas et al. 2009; Köklü 2012). The main results can be found in the following Table 6.7.

In the study conducted by Hill-Haas et al. (2009) found greater values of heart rate, blood lactate concentrations, and perceived exertion in the drills with continuous regimens. No statistical differences were found between intermittent and continuous regimen in distance covered or distance traveled while walking, jogging, or running at moderate speed, nevertheless, statistical differences were found in high-intensity running (Hill-Haas et al. 2009).

A similar comparison between intermittent and continuous regimens was tested in 2 versus 2, 3 versus 3, and 4 versus 4 formats (Köklü 2012). No statistical differences were found in the percentage of maximal heart rate, nevertheless, intermittent regimen had greater intensities in 2 versus 2 and 4 versus 4 formats. Nevertheless, blood lactate concentrations were greater in continuous regimen during 4 versus 4 and 6 versus 6 formats.

In a different study, Fanchini et al. (2011) compared the effects of different intermittent durations. Greater intensities were found in longer periods if not considered the first minute of exercise. In the same study, the analysis of technical performance revealed that greater values of passes, unsuccessful passes, and interceptions were made per minute in the regimen of 2 min (Fanchini et al. 2011). Nevertheless, these differences were not statistically different. Finally, in the study of Casamichana et al. (2013b) it was found that total distance covered was greater during intermittent games, specifically at moderate running speed.

Table 6.7 Acute physiological effects and distance covered in different training regimens

Study	F/SF	Regimen	HR (% HRmax)	BLa-1	RPE	DC
Hill-Haas et al. (2009)	2 versus2 28 × 21 4 versus 4 40 × 30 6 versus 6 49 × 37	4 × 6 min/1 min, 30 s rest	84	4.8	11.6 [0–20 scale]	2621
		24 min	87	5.5	12.3 [0–20 scale]	2596
Fanchini et al. (2011)	3 versus 3 37 × 31	3 × 2 min/4 min recovery	82.4	–	6.7 [0–10 scale]	–
		3 × 4 min/4 min recovery	85.9	–	6.8 [0–10 scale]	–
		3 × 6 min/4 min recovery	85.6	–	6.8 [0–10 scale]	–
Köklü (2012)	2 versus 2 15 × 20	3 × 2 min	88.6	7.8	–	–
		6 min	88.8	8.1	–	–
	3 versus 3 18 × 24	3 × 3 min	92.0	6.8	–	–
		9 min	91.2	7.2	–	–
	4 versus 4 24 × 36	3 × 4 min	90.1	6.7	–	–
		12 min	89.3	6.9	–	–
Casamichana et al. (2013a)	5 versus 5 55 × 38	2 × 8 min/2 min rest	87.1	–	–	–
		4 × 4 min/1 min rest	87.5	–	–	–
		16 min	87.5	–	–	–

F Format; *SF* Size of the field (m); *HR* Heart rate; BLa^{-1} Blood lactate concentration (mmol/L); *RPE* Rated of perceived exertion; *DC* Distance covered

Without a consensus, the studies suggest that continuous regimens increase the effort and the acute physiological responses. Nevertheless, better technical performance occurs in intermittent regimens. The smaller fatigue during intermittent regimens may justify the increase in the efficacy and technical participation in the game.

6.8 Conclusions

Coaches may use different task conditions to improve tactical thinking on the players or to increase specific skills during a game (Davids et al. 2013). These conditions may change the game dynamics but using SSCGs it is always possible to keep the main characteristics: teammates, opponents, ball, defensive and attacking actions. For that reason, this chapter aimed to analyze the effects of different conditions in acute physiological responses, time–motion profile and technical performance.

The main conclusions from this chapter are that small goals or endline, limited number of touches on the ball, man-to-man marking, use of floaters, coaches' encouragement, and continuous regimen of training contribute for an increase in acute physiological responses and greater distances covered. Moreover, games without regular goals, man-to-man marking and with floaters may contribute for an increase in skills performed during games and also to an improvement in tactical behavior and collective organization.

These indicators may be used to design the SSCGs and to identify the best periods of the week to apply. The distribution of SSCGs by the weekly periodization seems to be the ultimate objective of coaches and for such reason the following chapter will try to summarize the main evidences verified and provide some examples and guidelines to prescribe SSCGs during a typical week of training.

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