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## Small Sided Games (SSG)

### Improvement Using Aerobic Fitness and Techniques in Soccer Players

#### Practical Approach for Coaches



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This article explains the importance of Small Sided Games(SSG) in soccer training for the improvement of ability and capacities in soccer players. Size pitch (length, width) is more important than player involvement. Game intensity and trainer incitement affect a player's response during SSG; it increases effort, heart rate, sprint, acceleration, lactate accumulation and efficacy training. These types of drills must increase high intensity aerobic fitness (90-95%HRmax), lactate threshold, technical ability and agonism; during match play, these features have a great effect on the final result. Recent studies show that SSG helps establish rules, pitch dimension and number of players; it is a factor influencing exercise intensity in small sided games (Rampinini et al 2007). In table 1, there are exercises and ideal sizes for 3v3, 4v4, 5v5, 6v6 in a small, medium and large pitch.

Exercises	Dimensions		
	Small	Medium	Large
3-a-side	12 x 20 m	15 x 25 m	18 x 30 m
4-a-side	16 x 24 m	20 x 30 m	24 x 36 m
5-a-side	20 x 28 m	25 x 35 m	30 x 42 m
6-a-side	24 x 32 m	30 x 40 m	36 x 48 m

**Table 1. Pitch dimension relationship number of players**

The size of the field isn't enough to achieve the physical aims established; there is need select correct pitch size for each type of SSG in addition to sets and time. In table 2, there are levels, %HRmax, Bla(mmo/l), RPE(CR10) reached for only SSG.

Main Factor	Levels	HR (% of max)	La <sup>-</sup> (mmol·l <sup>-1</sup> )	RPE (CR10)
<i>Type SSG</i>	3-a-side	89.4 ± 2.3 **	5.5 ± 1.6 **	7.6 ± 0.9 **
	4-a-side	88.0 ± 2.6	5.0 ± 1.7	7.2 ± 0.9
	5-a-side	87.4 ± 3.5	4.8 ± 1.6	6.8 ± 1.0
	6-a-side	85.7 ± 3.4 **	4.2 ± 1.5 **	6.3 ± 1.2 **
		P<0.001 §	P<0.001 §	P<0.001 §
	Max diff.	3.7	1.3	1.3

**Table 2. Physiological Parameters**

We know pitch size is important on physiological parameters, length and width influencing game development. There is more length pitch than width, more development high intensity metabolic power (>20W/Kg) and high intensity running (>16 Km/h); less length pitch than width, more development high intensity acceleration(>2m/s<sup>2</sup>) and high intensity deceleration(< -2m/ s<sup>2</sup>), par example:

3v3 on 32x40mt (32mt length x 40mt wide): development high intensity acceleration(>2m/s<sup>2</sup>) and high intensity deceleration(<-2m/ s<sup>2</sup>) and less high intensity running (>16 Km/h) and metabolic power(>20W/Kg).

3v3 on 60x30mt (60mt length x 30mt wide): development high intensity running (>16 Km/h) and metabolic power(>20W/Kg). and less acceleration(>2m/s<sup>2</sup>) and deceleration(< -2m/ s<sup>2</sup>).

This training analysis was possible with K-GPS technology (Amisco-Pro Zone System), in another article I will talk about match and training load analysis.

Main Factor	Levels	HR (% of max)	La <sup>-</sup> (mmol·l <sup>-1</sup> )	RPE (CR10)
<i>Pitch Size</i>	Small	87.0 ± 3.6	4.6 ± 1.6	6.7 ± 1.2
	Medium	87.8 ± 3.3	4.9 ± 1.6	7.1 ± 1.1 ‡
	Large	88.0 ± 3.1 †	5.1 ± 1.7 †	7.2 ± 1.1 ‡
		P<0.05 §	P<0.01 §	P<0.001 §
	Max diff.	1.0	0.5	0.5

**Table 3 Dimension influencing on Physiological Parameters**

#### Training Example:

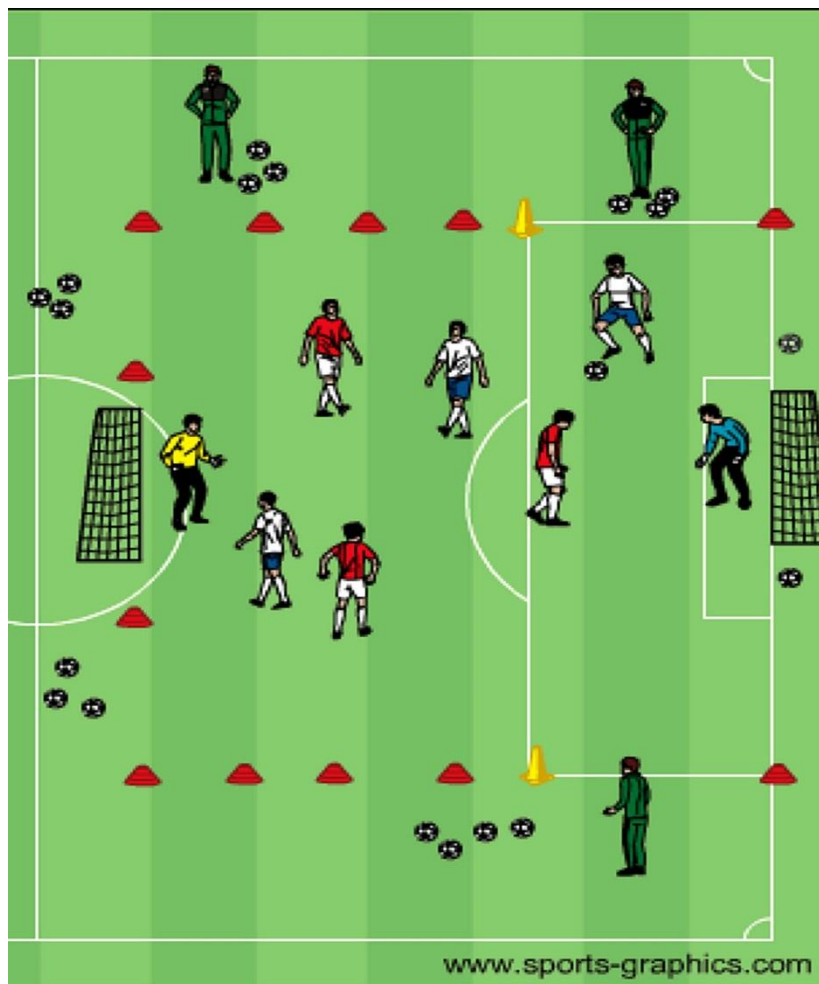
**Preparation:** 3 players for a side (3v3), 4-5 sets x 3v3 x 4'/5', on pitch dimension 30mt length x 20mt wide. The aim of this drill is aerobic power improvement and technique. To make two pitches (12 players each pitch), players who don't play make the banks (they create "THE CAGE"). Options: half pitch, touches (2-3) required or not, low ball etc...Coach and fitness coach decide rules for improving intensity. Remember a coach's encouragement makes a difference!!! (Table 4)

**Players:** 24

Main Factor	Levels	HR (% of max)	La <sup>-</sup> (mmol·l <sup>-1</sup> )	RPE (CR10)
<i>Encouragements</i>	With	88.7 ± 2.8	5.5 ± 1.7	7.7 ± 0.8
	Without	86.5 ± 3.5 **	4.2 ± 1.4 **	6.3 ± 0.9 **
		P<0.001 §	P<0.001 §	P<0.001 §
	Max diff.	1.2	1.3	1.4

**Table 4 Coach's encouragements**

### Exercise Drawn and Organization



**Table 5. NOTE: Ball around the pitch for fast play when the ball out**

Work's ideal time is 3-4 time x 4'-5' (when training aerobic power and improving aerobic fitness)

**Conclusion: Relationship pitch size, % maximal heart rate, blood lactate and RPE (rating of perceived exertion) with or without coach's encouragement.(Tables 6-7-8)**

## Small Sided Games

👤 players + 👤 dimension + 👤 encouragements

👤 intensity

3vs3 – large pitch – with encouragements  
(90.9 ± 2.0 % HR<sub>max</sub>; 6.5 ± 1.5 mmol·l<sup>-1</sup>; 8.5 ± 0.4 CR10)

👤 players + 👤 dimension + 👤 encouragements

👤 intensity

6vs6 – small pitch – without encouragements  
(83.8 ± 5.0 % HR<sub>max</sub>; 3.4 ± 1.0 mmol·l<sup>-1</sup>; 4.8 ± 0.9 CR10)

*Rampinini et al, 2007*

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**Table 6 Rules for Intensity game**

## Small Sided Games

Factors influencing SSG:

➤ Number players involvements:

👤 players 👤 intensity

➤ Size Pitch:

👤 dimension 👤 intensity

➤ Coach's encouragements:

👤 encouragements 👤 intensity

*Rampinini et al, 2007*

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**Table 7 Rules for Intensity game**

Levels	Size	Heart Rate (%Hrmax)		Blood Lactate (mmol/l)		RPE (CR10)	
		With	Without	With	Without	With	Without
3vs3	Small	89.5 ± 2.9	87.6 ± 1.7	6.0 ± 1.8	4.4 ± 1.1	8.1 ± 0.6	6.6 ± 0.4
	Medium	90.5 ± 2.3	88.6 ± 2.9	6.3 ± 1.5	4.6 ± 1.0	8.4 ± 0.4	7.0 ± 0.6
	Large	90.9 ± 2.0	89.1 ± 1.8	6.5 ± 1.5	5.0 ± 1.5	8.5 ± 0.4	7.2 ± 0.7
4vs4	Small	88.7 ± 2.0	86.5 ± 3.4	5.3 ± 1.9	4.2 ± 1.6	7.6 ± 0.5	6.3 ± 0.5
	Medium	89.4 ± 1.8	86.7 ± 3.0	5.5 ± 1.8	4.3 ± 1.4	7.9 ± 0.5	6.6 ± 0.6
	Large	89.7 ± 1.8	87.2 ± 2.8	6.0 ± 1.6	4.7 ± 1.2	8.1 ± 0.5	6.8 ± 0.5
5vs5	Small	87.8 ± 3.6	86.0 ± 4.0	5.2 ± 1.4	3.9 ± 0.9	7.2 ± 0.9	5.9 ± 0.7
	Medium	88.8 ± 3.1	86.1 ± 3.7	5.0 ± 1.7	4.1 ± 1.4	7.6 ± 0.6	6.2 ± 0.8
	Large	88.8 ± 2.3	86.9 ± 3.2	5.8 ± 1.6	4.6 ± 1.7	7.5 ± 0.6	6.2 ± 0.6
6vs6	Small	86.4 ± 2.0	83.8 ± 5.0	4.5 ± 1.5	3.4 ± 1.0	6.8 ± 0.6	4.8 ± 0.9
	Medium	87.0 ± 2.4	85.1 ± 3.3	5.0 ± 1.6	3.9 ± 1.4	7.3 ± 0.7	6.0 ± 1.4
	Medium	86.9 ± 2.4	85.0 ± 3.6	4.8 ± 1.5	3.6 ± 1.5	7.2 ± 0.8	5.9 ± 0.5

**Table 8 Relationship physiological parameters**

The Small Sided Games more intense than others result -3v3 or 4v4 large dimension (i.e. table). This is very important information for coaches and for soccer training.