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Integrating the small side games in the training programs during the preparation period and their role in developing the physical performance of the footballers "study from the perspective of the coaches"

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Abstract

This study aims at knowing the small side games integrated in the training programs during the preparation period and their role in developing the physical performance of the footballers. In this context, we used the descriptive method with a sample of 22 random coaches from the honorary league of the Wilaya of Jijel. Besides, we used the questionnaire for data collection. After the statistical procession, we found that the small side games integrated in the training programs during the general physical preparation have a positive role in developing the aerobic abilities of the footballers. Besides, the small side games integrated in the training programs during the special physical preparation have a positive role in developing the anaerobic abilities of the footballers.

1. Introduction

Football is one of the most important and investigated physical activities (Boutaoui&Kharoubi, 2021). It has developed, recently, and changed its playing nature because of the increase of the play speed and the physical performance level to achieve a better performance and high efficiency during the match (Hejab, 2019). In addition, football is characterized with changes in the players' efforts. In this regard, B. Turpin (2002) stated in his analysis of the French League matches that a player makes 72-109 fast runs and explosive movements each 43 seconds; in addition to 30 technical movements, 57 tactical movements, and 40-70midfield movement and direction change (Dehbazi&Jebali, 2020). Moreover, (Pellegrino et al., 2020) mentioned that the players make repetitive high intensity movements, followed by short breaks. In this context, Dellal et al. confirm that the modern football coaches continuously look for trainings that improve the physical and technical abilities (Dellal et al., 2011).

The physical preparation for any activity is one of the main steps for increasing the physical performance and maintaining the fitness (Houiche et al., 2020). Furthermore, it is one of the main aspects the coaches must master, perceive, and regulate continuously to develop the players' levels (Balsom, 1999). In this regard, the main aim in the phase of preparation is increasing the fitness and the technical performance. After many studies and researches, the physical preparation has been given its merits. Thus, new programs of 5-6 weeks are devoted for the physical preparation unlikethe past when it was 3-4 weeks (Bouneb& Ben Kara, 2020).

Furthermore, the interest in the football physical abilities has recently increased because the player must participate in the strike and defense. Thus, he needs a high fitness and technical and tactical skills (Sermento et al, 2018). Besides, the performancein football depends on 80% of the anaerobic system and 20% on the aerobic system to produce the energy. There are play situations that require aerobic energy; however, the decisive movements are made with the anaerobic system (Rampinini et al., 2009). Consequently, it is necessary that the football training focus on the

development of the aerobic and anaerobic abilities (Khouildi, 2018).

The modern training mainly depends on the small side games thanks to the competition-like situations (Abdel Wareth&Wadeh, 2022). In this vein, the small side games are an efficient tool in the development and advanceof the players’ levels and results. In addition, they suit the beginners and old players (Cheraiet, Kaderi, &Mohamedi, 2021) because they are used with different types and rules such as the number of players, the surface of the game, the number of the ball touches, etc according to the target objective (Casamichana&Castellano, 2010).

The level of football amateurs differs than that of the professionals because the amateurs show limited sport performance (Souileh& Ben Rabeh, 221). Besides, the training methods aim at developing the physical and functional abilities of the player. Therefore, We sought to set this study that concerns the coaches to know their awareness about the methods of training using the small side games and their role in developing the physical performance. Thus, we asked the following questions:

1.1 General question: - Do the small side games integrated in the training programs during the preparation period have a role in developing the physical performance of the footballers?

1.2 Sub-questions:

- Do the small side games integrated in the training programs during the general physical preparation have a role in developing the aerobic abilities of the footballers?
- Do the small side games integrated in the training programs during the special physical preparation contribute to developing the anaerobic abilities of the footballers?

2. the study

-Knowing the role of the small side games integrated in the training programs during the general physical preparation in developing the aerobic abilities of the footballers.

-Knowing the role of the small side games integrated in the training programs during the special physical preparation contribute to developing the anaerobic abilities of the footballers.

3. Identifying the terms and concepts

3.1 The small side games:

Bedouani defines them as the games between players using the ball. These games resemble the game situation during the match. He adds that they have physical, skill, and tactical aims (Bedouani, 2019, p. 08).

3.2 The physical preparation:

Ahmed Nasr Eddine defines it as the actions that increase the necessary physical and physiological fitness to develop the player's abilities and skills to the maximum (AlSayed, 2003, p. 23).

3.3 physical performance:

The researchers disagree about this concept and its components. In this context, some of them see that the ability is the tantamount of the fitness while others see that the physical ability is an expression that encompasses the fitness (Ismail &Hassanine, 1977, pp. 33-32).

3.4 Football:

It is a collective game where two teams of 11 players in each with different positions and tasks compete. It is played inside a rectangular stadium. The players try to score the maximum goals against the opponent. The team, which scores the most, wins (Guerroumi&Wadeh, 2021, p. 403).

4. Methodology:

5.1 The method:

The problem of the study determines the method to reach the aims. In this regard, many phenomena cannot be studied unless a scientific method that suit the problem is used. Therefore, we used the descriptive method because it is the most suitable for our study.

5.2 The pilot study:

It is a scientific training for the researcher to find the positivesand negatives that face him during the study to avoid them. Our pilot studywas conducted on a sample of 07 coaches to know the understandability of our questionnaire items and the difficulties that may face us during the main study to avoid them.

5.3 The study variables:

5.3.1 Theindependent variable: It is the small side games.

5.3.2 The dependent variable: It is the physical performance of the footballers.

5.4 Population and sample of the study:

The population is the football coaches of the honorary league of Jijel. Thus, we have 4 coaches for each of the 13 clubs; which gives 52 coaches in total. As for the sample, it included 22 coaches who had been chosen at random.

5.5 The study limitations:

5.5.1 The spatial limitations:

The study took place with the football clubs of the honorary league of Jijel. In this context, we chose some coaches at random.

5.5.2 The temporal limitations:

The study took place from 16-09-2023 to 10-11-2023.

5.5.3 The human limitations:

The study is made with 22 coaches of the football honorary league in Jijel.

5.6 The study tool:

We used the questionnaire for data collection. Thus, we made questions that suit the topic of the study, its problem, its hypotheses, and its related elements. Therefore, we had 18 items divided into two axes of 09 items per each.

5.7 The scientific conditions of the tool:

5.7.1 The validity: It calculates the correlation, which is the most common method of checking the validity. It is measured with the unit root of the questionnaire’s consistency coefficient. Its formula is as follows:

Validity coefficient = √consistency coefficient.

5.7.2 The consistency:

We used "Kuder Richardson" equation to find the correlation coefficient and consistency.

Table 02: The validity and consistency coefficients of the study tool:

Tool	Significance level	Consistency coefficient	Validity
Questionnaire	0.05	0.92	0.95

5.7.3 Objectivity:

It is one of the main factors that must be found in the good test. It means the absence of bias and the description of the phenomenon as it is. Thus, the researcher does not intervene in the answers.

5.8 The statistical treatment: To be able to comment on and analyze the questionnaire, we used the statistical analysis through putting in data and calculating the percentages. In addition, we used Chi-square test to get exact

results.

5. Analysis and discussion of the study results:

6.1 Presentation and analysis of the results of the 1st hypothesis:

It states, "The small side games integrated in the training programs during the general physical preparation have a role in developing the aerobic abilities of the footballers."

Table 03: the coaches' answers to the items of the 1st axis

Items	Answers	Frequency	Percentage	Chi-square	Table Chi-square	significance
Do you use small side games in your trainings?	Yes	16	100	8	3.84	Significant
	no	00	00			
Do you integrate the small side games in the GPP?	Yes	16	100	8	3.84	Significant
	no	00	00			
What small side games do you use to develop the aerobic abilities during GPP?	2 VS 2	01	6.25	12.89	5.99	Significant
	6 VS 6	12	75			
	9 VS 9	03	18.75			
Do you believe the small side games have an efficient role in developing VO_2Max	Yes	16	100	8	3.84	Significant
	no	00	00			
To develop VO_2Max in the GPP, do you use…	8 VS 8 in a small surface	12	75	4	3.84	Significant
	8 VS 8 in a big surface	04	25			
What rule do you use regarding the ball touches when the aim is increasing the endurance and the efficiency of the respiratory system?	Limited number of touches	04	68.75	4	3.84	Significant
	Free game	12	31.25			
When the aim is developing the aerobic energy system, what rule do you use regarding the work/break?	Less break than work	06	37.5	6.13	5.99	Significant
	Break equals work	09	56.25			
	Break is double the work	01	6.25			
What method do you use in GPP to develop the aerobic abilities?	Continuous	16	100	8	3.84	Significant
	Discontinuous	00	00			

Significance level 0.05/ freedom degree = N-1

The answers of the coaches show that the 1st and 2nd questions have statistically significant differences for the maximum value. In this regard, the value of the calculated Chi-square is 08 and is more than the table Chi-

square that is 3.84 at significance level 0.05 and freedom degree 1. This explains that all the coaches rely on the small side games in their work. Besides, they integrate them in GPP. Moreover, question 03 shows statistically significant differences for the maximum value. The value of the calculated Chi-square is 12.89 and is more than the table Chi-square that is 5.99 at significance level 0.05 and freedom degree 2. This shows that 75% of the coaches rely on 6VS6 games to develop the aerobic abilities during GPP. This is confirmed by Clemente et al., saying that the use of a big number of players in the small side games develops the aerobic abilities (Clemente, Martins, & Mendes, 2014).

Question 04 shows statistically significant differences for the maximum value. In this regard, the value of the calculated Chi-square is 08 and is more than the table Chi-square that is 3.84 at significance level 0.05 and freedom degree 1. This explains that all the coaches are aware that the small side games play a role in developing Vo_2Max.This goes with (Dehbazi&Jebali, 2020) who found that the suggested training program using the small side games directly affects the Vo_2Max. Besides, question 05 shows no statistically significant differences. In this regard, the value of the calculated Chi-square is 2.25 and is less than the table Chi-square that is 3.84 at significance level 0.05 and freedom degree 1. However, we can say that 68.75% of the coaches see that to develop Vo_2Max during GPP, it is necessary to use a big number of players. This is confirmed by (Clemente, Martins, & Mendes, 2014). Question 06 shows statistically significant differences for the maximum value. The value of the calculated Chi-square is 04 and is more than the table Chi-square that is 3.84 at significance level 0.05 and freedom degree 1. This shows that 75% of the coaches rely on 8VS8 and small surface games to develop the aerobic abilities during GPP. The same was found by (Clemente &Sarmento, 2020) who found out that the small stadiums make a big pressure on the football holder. Therefore, the aerobic performance increases.

Question 07 shows statistically significant differences for the maximum value. The value of the calculated Chi-square is 04 and is more than the table Chi-square that is 3.84 at significance level 0.05 and freedom degree 2. This shows that 75% of the coaches rely on the free play rule when the goal is developing the endurance and the respiratory system. As for question 08, we see statistically significant differences. The value of the calculated Chi-square is 6.13 and is more than the table Chi-square that is 5.99 at significance level 0.05 and freedom degree 2. This shows that

56.25% of the coaches believe that the rate of work/break must be equal. This goes with Aguiar et al, (2012) who see that the development of the aerobic energy system requires the (1:1) break/work relation. Moreover, question 07 shows statistically significant differences for the maximum value. The value of the calculated Chi-square is 08 and is more than the table Chi-square that is 3.84 at significance level 0.05 and freedom degree 1. This means all the coaches rely on the continuous training in developing the aerobic abilities during GPP. This is confirmed by (Carliong& Bloomfield, 2010) who see that thecontinuous training in the small side games increases the endurance.

6.2 Presentation and analysis of the 2nd hypothesis:

It states, "The small side games integrated in the training programs during the special physical preparation contribute to developing the anaerobic abilities of the footballers"

Table 04: The answers of the coaches to the questions of the 2nd axis.

Items	Answers	Frequency	Percentage	Chi-square	Table Chi-square	significance
Do you integrate the small side games in the SPP?	Yes	16	100	8	3.84	Significant
	no	00	00			
Do you target developing a special anaerobic physical characteristic through the small side games?	Yes	16	100	8	3.84	Significant
	no	00	00			
What small side games do you use during SPP to develop the anaerobic abilities?	2 VS 2	14	87.5	16.8	5.99	Significant
	6 VS 6	02	12.5			
	9 VS 9	00	00			
To develop the anaerobic physical characteristic using the small side games, what rule do you use regarding the game surface	Big surface	11	68.75	2.25	3.84	Insignificant
	Small surface	05	31.25			
Do you believe the use of less players increases lactate concentration in blood?	Yes	13	81.25	12.06	5.99	Significant
	No	00	00			
	Maybe	03	18.75			
Do you believe that 2 VS 2 improves sprint time more than 5 VS 5?	Yes	15	93.75	21.06	5.99	Significant
	No	00	00			
	Maybe	01	6.25			
To develop the force in SPP, what rule do you use?	Small surface and few players	12	75	4	3.84	Significant
	Big surface and many players	04	25			
To develop the anaerobic abilities in SPP, what rule	One touch	09	56.25	4.04	5.99	Insignificant
	Two touches	07	43.75			

do you use?	Free game	00	00			
What method do you use in SPP to develop the anaerobic characteristics?	Discontinuous training	13	81.25	6.25	3.84	Significant
	Continuous training	03	18.75			

Significance level 0.05/ freedom degree = N-1

The answers of the coaches show that the 1st and 2nd questions have statistically significant differences for the big value. In this regard, the value of the calculated Chi-square is 08 and is more than the table Chi-square that is 3.84 at significance level 0.05 and freedom degree 1. This explains that all the coaches rely on the small side games in SPP and target the development of anaerobic abilities. Moreover, question 03 shows statistically significant differences for the maximum value. The value of the calculated Chi-square is 16.18 and is more than the table Chi-square that is 5.99 at significance level 0.05 and freedom degree 2. This shows that 87.5% of the coaches rely on 2VS2 games to develop the anaerobic abilities during SPP. This is confirmed by Rampinini et al saying that the use of a small number of players in the small side games develops the anaerobic abilities through the increase of the game rhythm (Rampinini et al, 2000).

Besides, question 04 shows no statistically significant differences. In this regard, the value of the calculated Chi-square is 2.25 and is less than the table Chi-square that is 3.84 at significance level 0.05 and freedom degree 1. However, we can say that 68.75% of the coaches see that to develop the anaerobic abilities with small side games, it is necessary to use a big game surface. This is confirmed by Guerroumi&Wadeh (2021) who found out statistically significant differences between the small and big game surfaces on behalf of the big surface in improving RSA. Moreover, question 05 shows statistically significant differences for the maximum value. In this regard, the value of the calculated Chi-square is 12.06 and is less than the table Chi-square that is 5.99 at significance level 0.05 and freedom degree 2. This shows that 81.25% of the coaches believe that the use of a small number of players increases the lactate concentration in the blood, as confirmed by (Clemente, Martins, & Mendes, 2014). As for question 6, there are statistically significant differences for the maximum value. The calculated Chi-square is 21.06 and is bigger than table Chi-square that is 5.99 at significance level 0.05 and freedom degree 02. This means that 93.75% of the coaches believe that 2VS2 games improve the sprint time more than 5VS5, as found by (Katis&Kellis, 2009) who found that the sprint time in 3VS3 is better that in 6VS6. Therefore, the sprint time in the

games with a small number is better than in the big number.

As for question 7, there are statistically significant differences at significance level 0.05 and freedom degree 01. The calculated Chi-square is 04 and is bigger than table Chi-square that is 3.84. This means that most of the coaches use a small surface and a small number of players to develop the strength in the SPP. In addition, question 08 shows no statistically significant differences at significance level 0.05 and freedom degree 02. The calculated Chi-square is 4.04 and is bigger than table Chi-square that is 5.99. However, we can say that 56.25% of the coaches rely on the rule of 01 touch during SPP to develop the anaerobic abilities, as found out by Dellal who found out that the small side games with one touch increase more lactate concentration in the blood and the physical requirements in running and high intensity running (Dellal et al., 2011). Moreover, question 9 shows statistically significant differences for the maximum value at significance level 0.05 and freedom degree 01. The calculated Chi-square is 6.25 and is bigger than table Chi-square that is 3.84. This means that81.25% of the coaches use the discontinuous training in SPP to develop the anaerobic abilities, as found by (Kanoun&Charef, 2021) who found that the periodical training with 3VS3 is better than the continuous training.

6.3 Discussion of the results:

6.3.1 Discussion of the 1st hypothesis:

From the 1st axis, we found out that most of the coaches use the small side games to develop the aerobic abilities in the GPP. For instance, the answers to question 02 tell that the coaches use the small side games during GPP. In addition, the answers to question 05 show that most of them use a big number of players during GPP to develop Vo_2Max. Besides, the answers to question 06 show that most of them use 8VS8 games and a small surface to develop the aerobic abilities during GPP, as confirmed by (Chelighem&Hejaj, 2021) who fund that the coaches in the amateur league are aware about the uses of the small side games in developing the physical and techno-tactical performance, and the study of (Clemente et al, 2014) that found that the change in the players' number, the stadium dimensions, and theplay rules leads to different physiological responses. Based on these findings, the previous studies, and the theoretical background, we can confirm the 1sthypothesis that states, "The small side games integrated in the training programs during the general physical preparation have a role in developing the aerobic abilities of the footballers".

6.3.2 Discussion of the 2nd hypothesis:

Findings show that the answers of thecoaches are almost the same. In this context, the coaches of the honorary league are aware about the uses and role of the small side games in developing the anaerobic abilities during SPP. For instance, the answers of questions 01 and 02 show that the coaches use the small side games during SPP and target the anaerobic abilities. Besides, the answers to question 07 show that most of the coaches rely on small surfaces and a small number of players to develop the force during SPP, as confirmed by (Rampinini et al, 2000) who found out that the small side games with small number of playersdevelop the anaerobic abilities through increasing the game rhythm. Furthermore, the study of (Dellal et al, 2011) found that the games with one touch increase blood lactate, RPE, and the physical requirements in running and high intensity running. In addition, our findings agree with those of (Katis&Kellis, 2009) who found that the small side games 3VS3 provide a higher incentive to develop the skill and physical performance compared to 6VS6games. Thus, we confirm hypothesis two that states, “The small side games integrated in the training programs during the special physical preparation contribute to developing the anaerobic abilities of the footballers”.

6. General deduction

presenting the results, their implications should be evaluated and From the discussion of the findings, we can conclude that:

- The small side games integrated in the training programs during the general physical preparation have a role in developing the aerobic abilities of the footballers.
- The small side games integrated in the training programs during the special physical preparation contribute to developing the anaerobic abilities of the footballers.

The main hypothesis that states,“ The small side games integrated in the training programs during the preparation period have a role in developing the physical performance of the footballers” is confirmed.

7. Conclusion

The small side games are modern trainings used much in modern football. They include a set of rules and types that the coach must know. Therefore, it is necessary to show their importance in developing the physical performance of the footballers. In this context, our study showed that the coaches use the small side games in the GPP and SPP for their importance in developing the aerobic and anaerobic abilities. Consequently, we can suggest that:

- It is necessary to use the small side games in GPP to develop the aerobic abilities of the footballers.
- It is necessary to use the small side games in SPP to develop the anaerobic abilities of the footballers.
- It is necessary to suggest a training program based on the small side games with their different rules, types, and methods during GPP.
- The coaches must be ware about the various rules of using the small side games to develop the aerobic and anaerobic abilities of the footballers.

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