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# Aspects regarding the physical training level of "CSL Sporting Lugaş" female football team during the competitive year 2017-2018

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**Abstract:** This study was designed to determine the evolution of the physical training level of the "CSL SPORTING LUGAŞ" female football during the competitive year 2017-2018 by conducting two tests before and after the physical training program, and using Gacon and Yo-Yo tests. These tests are an element of novelty in Romanian football overall and in female football especially, as they introduce a certain level of competition, generating emulation and desire to compete. These tests have a high degree of difficulty. In this regard, we can also highlight athletes' desire to complete the tests with best results.

**Keywords:** football, physical training, feminine football, physical effort capacity, motricity skills

## Introduction

Football is one of the most spectacular sports activities, a unique, complex, novel, and sometimes a paradoxical game. A worldwide mirage, an imposing and exciting show of air and movement (Buhaş, 2015a; Herman et al., 2016; Buhaş et al., 2016).

The high level of technical and tactical expression in football is conditioned by the quality of players' physical training in all its forms (Dunbar, 1997). The

technological and methodological development, as well as the innovative impact of young coaches, led football to a high level of representation (Buhaș, 2015b). The development of female football tried to keep up with male football. However, there are still major differences regarding the level of technical expression in feminine vs. male football (Buhaș, 2015c). On this background, we aim to quantify the importance of physical training in the practice of female football (Ilieș, 2018). Through specific research methods we will assess the level of physical training of a female football team and the way it influences the level of technical expression (Buhaș, 2015d). Female football, although it is a "man's" sport, manages to be a spectacular game full of dynamism. Female football, as well as male football, is defined by a succession of intermittent efforts. The soccer player manifests on the ground based on his/her physical and technical training, to the height of performance (Herman et al., 2016). From a physiological perspective, football is predominantly a dynamic activity in which the continued struggle to get the ball takes place under intense effort throughout the game, including the most varied motricity skills: walking, running, sudden stops, jumps, twists, and so on (Pantelis, 2011). Therefore, football requires good technical and tactical training, as well as a high physical training (Marinău, 2017). The rational dosage of the effort under supervision can ensure the success of this training (Goto, 2004). It is more than just a ball game; it is the sportive discipline that is most widely spread in most countries around the world. Not accidentally, it was and is a game of all possibilities and surprises, also called "the King Sport" (Reilly, 2003; Buhaș et al., 2018).

In what regards female football, it has begun to develop very much, with numerous competitions for all categories, starting with juvenile football and continuing with the high performance game (Marinău, 2016; Marcu, 2011). Both its quantitative and qualitative development has progressively increased, and the level of play has reached a very high level of performance. Research demonstrates a continuous improvement of the female football game (Dumitrescu and Deac, 2009).

In year 1994 I. Motroc said about physical training that: "the entire system of means that ensure the functional capacity of the body through a high level of development of motricity and specific qualities, ensures the increasing of the morpho-functional indexes on a background of a perfect state of health" (Motroc I., 1994, pag. 68).

In the practice of female football, physical training is based on two important components - general physical training and specific physical training, both of them enabling an increase in the level of player's expression, both during the game and the training (Ciolcă S., 2015; Sooneste, 2013).

Team sports require three major skills: strength, agility and speed. The most common terms of strength is the ability to act on force in the shortest time possible. The development of physical abilities in team sports consists of two stages: the first stage is the improvement stage when players' skills are developing rapidly according to the adjustment of the organized training. This process can last several years until reaching the maximum performance. The second stage is the capping stage in which athletes must continue to improve their physical qualities so they can be more competitive, run faster than their opponents or become more agile. The

only way to continue improving these qualities is to follow a training aiming strength and force. Today's players are stronger than the ones from the past due to better training and, as a result, matches have also reached a higher rate of rapidity with increasingly aggressive players (Bompa, 2006; Thomas, 2010).

Physical training (the training and the football game) is a decisive element for team functioning, contributing to the development of the morphological and functional abilities of the players' body. Actions without the ball represent about 87 minutes of a match, while the movements implying the ball are accurately executed at appropriate times under the conditions imposed in the game (Şiclovan, 1977). An important factor is also the way athletes are socially interacting (Lucaciu et al., 2014).

General physical training aims at: "adapting the vital functions of the body to effort"; "multilateral and proportional development of all parts and body segments"; "developing players` general motricity"; "developing the background of basic and specific motricity skills and abilities" (Ciolcă, 2015, p.17). In order to achieve good results during the game it is necessary to form physically, technically and tactically balanced players. An important role is also played by the motivation (Dragoş, 2014).

Both general and specific physical training ensure the player a good growth and a harmonious development of motricity skills adapted to football game, laying the groundwork for the development of appropriate techniques and tactics during matches. During the game the effort is not uniform and prolonged, alternating with the low effort. There is a close relationship between these two types of physical training, from particular to general, both aiming at conditioning the athlete`s performance.

### **Research methodology**

In order to undertake the present study both internal and external literature review regarding specific methods and techniques for highlighting the evolution of the training level was developed. Therefore, two tests were used to determine the physical training (Gacon and Yo-Yo) of the CSL "Sporting" Lugaş feminine football team in the competitive year 2017-2018. The research was conducted over eight weeks, during which 3 training sessions with a duration of 80-100 minutes were performed per week. The total number of subjects was 12 and they were ranged between 13 and 24 years.



**Figure 1.** Game snapshot

## Results and discussions

People practicing sports at any level, in our case feminine football, present a permanent risk of injuries, but regular medical check-ups can reduce these risks. During the medical check-up made at the beginning of the training period, the athletes were measured for height and weight, heart rate, oxygen saturation and also other measurements were checked as it can be seen in the table below. Athletes have also been subjected to questions such as: the existence of serious family illnesses, diseases that they have or may have at present, if they have undergone surgery, if they have had moments of dizziness or irregular breathing during trainings, etc. Medical check-up (which gives the right to play - medical visa) is important to identify whether the athlete is experiencing some health problems that may occur during sporting competitions.

**Table 1.** Morpho-functional indicators of players` physical training

No.	Player's initials	Age	Weight	Height	Biacromial diameter	Bitrohanterian diameter	Blood pressure	Pulse	Oxygen saturation
1	C. D.	15	57.5	167	31	26	100/60	61	99
2	G. G.	18	51	160	34	27	100/60	65	99
3	T. A.	24	57	177	36	28	100/60	70	99
4	C. A. D.	17	48	155	35	26	111/65	68	99
5	H. D. A.	20	44	160	32	25	100/60	88	98
6	J. A.	13	45	165	37	25	110/60	100	99
7	N. E. I.	21	68	166	36	26	100/60	90	99
8	D. C.	25	52	160	34	26	110/60	65	98
9	Z. R. E.	22	59	159	35	25	110/60	80	99
10	D. D.	16	58	165	34	27	110/60	60	98
11	S. S.	19	48	166	30	25	100/60	100	99
12	I. R.	18	56	167	31	24	100/60	80	99

The medical check-up outlined that athletes are within the accepted limits regarding the measured parameters. Body mass index (BMI), which is defined by the ratio between the height and the square of the height, lies within optimal parameters. Scientific theory places the optimal BMI between 18.5 and 29.9. In our case the average value is 21.15. Optimal blood pressure is considered to be below 120/80 mm Hg. In our case, the measured values are normal for the performance sport, the average value being 105/60. In terms of heart rate or pulse, it has an optimal value ranged between 60 and 80 pulses/minute. In our case the average is 77 beats/min, which is an ideal value. Although football is a team sport, each athlete has to be seen in his/her individuality. Physical training must take into account the

individual parameters of each athlete (differences are noted in the table above), and he/she should be customized in order to achieve optimal results.

Following the medical check-up, the physician gives the athlete the agreement to practice high performance sports by applying the stamp with the "medical visa" on the athlete's badge card. This certifies that the athlete is able to practice high performance sports and is capable to maintain a high level of effort.

In order to improve morpho-functional parameters and develop physical capacity, athletes follow a differentiated training program depending on the time of the year, but also on the goals set by the coach. The level of physical training is decisive in maintaining a performance activity. It must be determined and measured very precisely, must have a scientific character so that results can be generated accordingly. For our study we have chosen to use two tests to determine the physical training level - the GACON test and the YO-YO test.

The GACON test is named after its inventor, the famous physical preparator of Olympique Marseille. It is a test that determines the level of physical training and has been more and more used also by the Romanian teams. This test consists of running on a certain distance for 45 seconds, followed by a 15 second break and has 25 stages. Initially, the distance to run is of 125 meters and after each tour, this distance increases by 6.25 meters, while the running time remains unchanged (45 seconds), and in the end the total running distance reaches 5000 meters. It is a difficult test, rarely being completed by all players. In the table below, we provide the results obtained by the team's players, both in the initial testing and in the final testing.

**Table 2. Testul GACON**

No.	Player's initials	Initial Testing		Final Testing	
		Tour no.	Speed (km/h)	Tour no.	Speed (km/h)
1	C. D.	19	17	20	17.5
2	G. G.	21	18	23	19
3	T. A.	18	16.5	20	17.5
4	C. A. D.	17	16	19	17
5	H. D. A.	20	17	21	18
6	J. A.	15	14.5	16	15.5
7	N. E. I.	18	16.5	19	17
8	D. C.	18	16.5	19	17
9	Z. R. E.	20	17.5	20	17.5
10	D. D.	19	17	20	17
11	S. S.	20	17.5	22	18.5
12	I. R.	21	18	22	19

An important phase of physical training is the one that focuses on developing the maximum aerobic speed. The players managed to do very well during the test, achieving satisfactory results. Table 2 shows the results obtained both in the initial and final testing, resulting in an improved maximum aerobic speed compared with the initial test. However, the athletes did not manage to end all 24 laps. This aspect is

not very important because our study was conducted on an amateur team with an average level of performance. What is relevant, however, is the progress and the fact that their physical training has improved following an upward trend.

The YO-YO test provides a very good opportunity to estimate the ability of a subject to maintain high intensity efforts, determining thereby the resistance in a speed activity. This test implies a 20-meter speed run and return, in ten seconds, followed by a ten-second pause. This race is repeated 45 times. The purpose of this test is to evaluate the individual's potential to perform a high-intensity interval running in a short time of returning, over a long period of time. It is used in various sports, including football (Tudor, 2005). This test has a direct link to VO<sub>2</sub> max which is the maximum aerobic capacity, i.e. the highest level of oxygen consumption achieved in maximum effort. Bangsbo, in 1998, published the formula for estimating VO<sub>2</sub>max (ml/min/kg) following the Yo-Yo test results:  $VO_2\max = \text{Yo-Yo distance (m)} \times 0.0084 + 36.4$  (Bangsbo, 1998). This test was designed to evaluate the level of physical training of athletes who practice team sports, especially football players. We used this test in our study to determine the level of resistance during a speed activity. The results obtained from the measurements can be seen in table 3.

**Table 3.** Testul YO-YO

No.	Player's initials	Initial testing		Final testing	
		Last running phase Km/h	VO (2) Max	Last running phase Km/h	VO (2) Max
1	C. D.	10.11	47.4	11.11	50.9
2	G. G.	12.12	54.2	14.3	58.1
3	T. A.	12.2	54.5	14.3	51.4
4	C. A. D	10.11	48.5	11.11	58.1
5	H. D. A.	13.2	54.9	13.12	57.7
6	J. A.	10.6	45.7	11.11	50.9
7	N. E. I.	11.8	49.9	13.1	54.2
8	D. C.	10.11	47.4	11.1	49.9
9	Z. R. E.	13.6	56	14.3	58.1
10	D. D.	12.12	54.2	14.3	58.1
11	S. S.	13.6	56	14.3	58.1
12	I. R.	13.2	54.9	14.3	58.1

We used this test to pursue the development of maximum resistance in conditions of speed. The athletes obtained more than satisfactory results, given the difficulty of the test, but also the level of training and performance of studied team. There is an interval between 10.11 and 13.6 of the running speeds, with an average of 11.9. Regarding the maximum aerobic capacity, we have a range of 45.7 to 56, with an average of 51.96 (during the initial testing). After the final testing the average speed was 13.03 and the average of the maximum aerobic capacity was 55.3. The final testing showed an increase of the movement speed and of maximum aerobic capacity. The effort is much better dosed and assessed during the final testing than during the initial testing.

## Conclusions

We aimed at determining the level of physical training and also the increase rate of sporting performance in two directions: by testing the aerobic maximum speed and the resistance in conditions of speed by using the mentioned two tests (GACON and YO-YO test). If the first tests used to determine the maximum aerobic speed showed favorable results for the initial testing, as the number of executions increased the results started to improve. These aspects can be observed from the results of the final tests, even if the athletes did not finish all 25 laps. The assessment of resistance in conditions of speed reveals a sustained growth rate, both the movement speed and maximum aerobic capacity being improved. These results are also influenced by the way athletes were involved. The novelty of tests determined them to overcome the difficulties.

It is highlighted that, following a well-organized training, the women practicing women's football at CSL "Sporting" Lugaş have had very good results, not only in the tests proposed for determining the level of their physical training, but also at the level of team performance.

We realized that this activity is an important means of communication and socialization, decisive aspects regarding team work. Football, as a team game, generates strong social connections, highlighted by a good work atmosphere. Tests results were satisfactory, the players being seriously involved in the activity. We appreciate the quality of the means used to increase the level of physical training. As a result of the training one can see an increase in the efficiency, fluency and level of play, this aspect reinforcing our working hypothesis.

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