

The physical capacity of speed in female athletes of “Delfín” SC of the City of Manta

La capacidad física de velocidad en atletas femeninas del “Delfín” SC de la Ciudad de Manta

Jean Carlos Vélez-Loor¹, Carlos Javier Parrales-Pico², Génesis Alicia Alfonso-Zambrano³, Jorge Luis Anchundia-Espinales⁴, Esperanza Katherin Vera-Loor⁵

¹M. Sc. Universidad de Milagro. Ecuador. spor-vel@outlook.es

²Lic. Universidad Laica Eloy Alfaro de Manabí. Ecuador. cparralespico@gmail.com

³Lic. Universidad Laica Eloy Alfaro de Manabí. Ecuador. rusherger@gmail.com

⁴Lic. Universidad Laica Eloy Alfaro de Manabí. Ecuador. anchundiajorge41@gmail.com

⁵Lic. Universidad Laica Eloy Alfaro de Manabí. Ecuador. hopenve@outlook.com

Date of reception: October 18, 2021.

Date of acceptance: December 3, 2021.

ABSTRACT

The objective of this study is to compare the physical and physiological results of women's soccer in the “Delfín” SC Club, in the city of Manta, Ecuador, based on speed tests, in the under-16 and older categories to evaluate both indicators and reconcile their progress. Research methods such as analysis and synthesis, systemic-structural-functional, comparison of means and hypothesis were used. The results show the need to consider the continuity of the preparation, particularly the physical direction, based on the growth of the soccer players and to improve the systematic selection process.

Keywords: Speed physical capacity; Resting pulse; Training; Female soccer

RESUMEN

El presente estudio tiene como objetivo comparar los resultados físicos y fisiológicos del fútbol femenino en el Club “Delfín” SC, de la ciudad de Manta, Ecuador, basándose en pruebas de velocidad, en las categorías menores sub-16 y de mayores para evaluar ambos indicadores y conciliar sus avances. Se utilizaron métodos de investigación como análisis y síntesis, sistémico-estructural-funcional, comparación de medias y la hipótesis. Los resultados evidencian la necesidad de considerar la continuidad de la preparación, particularmente la dirección física, en función del crecimiento de las futbolistas y de mejorar el proceso de selección sistemática.

Palabras clave: Capacidad física velocidad; Pulso en reposo; Entrenamiento; Fútbol femenino

INTRODUCCTION

The current need to improve the physical conditions of soccer has revolutionized the different ways of interpreting the conditional physical abilities in this case, the speed in short stretches that is more similar to the technical executions of the soccer player on the field of competition.

Current research recommendations provide the need to optimize methodologies in order to improve the technical skills of the game and reach levels of conditioning according to the current demands of this sport. The authors of this research coincide with some authors such as Bangsbo (1998), who confirms that *“...the results of scientific studies help to obtain a better understanding of the demands and limitations of sports performance in soccer...”*. These contributions, together with practical experiences, provide information that allows the design of adequate training to achieve greater performance in competitions.

In Ecuador, especially in the city of Manta, the selected samples still correspond to a comparative study where it is intended to demonstrate that by evaluating the conditional capacity of speed, it becomes a necessity for the samples under study to respond promptly to the demands raised, which implies that training sessions are still usually considered where these qualities offered by the soccer players sampled during the game are not visible, oh they are usually left aside in favor of physical abilities.

Authors as Caspersen, Powell and Christenson define physical fitness as *“the ability to carry out daily tasks with vigor and vivacity without excessive fatigue and with sufficient energy to enjoy free time or leisure and to face unexpected emergencies”* Caspersen, Powell and Christenson (1985) cited in (De la Cruz and Pino, 2010, p. 1).

These authors include within the components, in addition to conditional, coordinative abilities and flexibility, body composition and cardiovascular function. They even allude to an important element in today's world, in which you have to respond to emergencies caused by changing conditions

Traditionally, in the training of soccer players, technique, tactics, psychological, sociological and intellectual preparation and physical preparation are worked on separately, with an emphasis on conditional capacities. These ways of training, in recent years have had change where all these training directions mentioned above are integrated.

Quoting Vera (2007), who states that *"...The ability to perform in soccer, as a consequence of the development of skills, is achieved through a complex process such as training, taking into account the personal characteristics of the athletes and the environmental conditions that occur..."*

Other authors consider the need to incorporate the integrality of the physical capacities and their preparation components into the preparation, with the aim of achieving excellent results. The objective of this research is to evaluate the results obtained in the 30m distance speed test, based on the real results that are offered.

METHODS

In order to obtain the necessary information on the current state of the development of the physical capacity of speed in female athletes of the "Delfin" SC of the City of Manta, methods and techniques were selected and applied, which are described below.

A documentary analysis was carried out that allowed evaluating the development of the physical capacity of speed in female athletes of the "Delfin" SC of the City of Manta, for its correct development the documents to be analyzed were previously selected based on the objective of the diagnosis.

Several training sessions were observed to verify the development of the physical capacity of speed in female athletes of the "Delfin" SC of the City of Manta. The observation made is of the non-participant type, for its application some of its characteristics were considered, such as generality, systematicity and objectivity.

A survey was applied to the athletes of the Dolphin SC of the City of Manta to determine the level of theoretical-methodological preparation that the coaches present to develop the physical capacity of speed, this facilitated making conclusions in relation to the current state of the development of the capacity. physical speed, allowing the identification and assessment of the limitations of the

training process to achieve the proposed objective.

The coaches of the “Delfin” SC team of the City of Manta were interviewed to determine the level of preparation they have to develop the physical capacity of speed in the team's athletes.

Using the Wilcoxon rank test, the results obtained in the speed tests carried out were compared, which made it possible to determine the differences in the development of the physical capacity of speed in female athletes of the “Delfin” SC of the City of Manta.

The Delphi method was used to process the criteria of the consulted specialists whose results allowed assessing the relevance of the strategy developed to develop the physical capacity of speed in female athletes of the “Delfin” SC of the City of Manta.

To compare the physical and physiological results obtained in the speed tests carried out in the women's soccer club “Delfín” SC in the under-16 and older categories, in the city of Manta, Ecuador, a triangulation was carried out that allowed evaluating both indicators and reconcile their progress. The results obtained are presented below

RESULTS

For this research, 33 soccer players were sampled, 11 of them from the senior category and the rest from the sub-16 categories. This comparison is due to a traffic study and to compare that the results are possible in both ages of studies.

Two tests were taken into account with the following indicators:

- Resting pulse.
- 30m speed.
- pulse pa
- Quiz 5x10
- pulse pa

The mean, mean and standard deviation were applied to these indicators.

Resting pulse measurement. To do this, the footballer must remain at rest for at least five minutes, preferably in the supine position. A heart rate monitor will be used or, failing that, it will be done through palpation. In the latter case, it will be

reflected in the standardization of the comprehensive physical condition test, and the area of the body used and the time used will be identified. It is recommended to measure the pulse in 10 and 15 seconds as proposed by Zabala (2008).

Pulse measurement at the end of work. The pulsations are recorded with a heart rate monitor or, alternatively, through palpation. In the latter case, it will be done in the same place on the body and during the time used to determine the resting pulse.

Pulse measurement three minutes after finishing work. At the end of the last motor task, the student should perform only those activities that allow rapid recovery, for example, breathing exercises. The pulsations are registered in the same way and according to the previous indications.

Table 1.

Scale for the evaluation of the effort

% heart rate reserve	≥ 85%	≥ 76%	≥ 67%	≥ 57%	< 57%
Quantitative evaluation	10 and 9	8,9 and 8	7,9 and 7	6,9 and 6	5.9
Qualitative evaluation	AND	MB	B.	R	M

Font: Own elaboration

Recovery. It is interpreted as such the functional state of the student that allows him, once the physical activity is over, to restore *“the energy reserves and all the substances that intervened during the execution of the physical load, likewise the various functions of the organism are restored, recovers the physical capacity for work and there is a gradual increase in it”* (Díaz and Carabeo, 2001).

In addition, the following criterion was used: “the higher percentage of recovery heart rate, the better the school's recovery” (Del Canto et al., 2001, p. 7). From there, the score scale obtained by dividing the percentage by 10 is derived. The scale of values is shown in Table 2.

Table 2. Scale for the evaluation of recovery

% heart rate reserve	≥ 90%	≥ 80%	≥ 70%	≥ 60%	< 60%
Quantitative evaluation	10 to 9	8.9 to 8	7.9 to 7	6.9 to 6	5.9 to 1
Qualitative evaluation	AND	MB	B.	R	M

Font: Own elaboration

Table # 3. Major categories

No.	Age	pulse r	Test 1		test 2	
			speed 30m	pulse pa	quiz 5x10	pulse pa
		worth	weather	worth	weather	worth
1	28	87	4.86	120	23.17	180
2	19	72	4.94	110	24.12	160
3	19	85	6.69	150	27.3	170
4	26	76	5.22	120	25.51	160
5	18	73	5.1	130	24.16	150
6	17	81	5.34	130	25.03	170
7	17	75	5.5	120	24.33	150
8	18	72	4.45	110	23.12	170
9	18	78	5.2	110	25.37	160
10	18	85	5.33	120	27.19	160
11	33	94	5.38	140	26.55	180
Obtained results						
Half	20	79	5	122	25	164
Median	18	78	5.22	120	25.03	160
Standard D.	5.4	7.2	0.55	12.9	1.5	10.4

Font: Own elaboration

Table # 4. Under-16 Category

No.	Age	pulse r	Test 1		test 2	
			speed 30m	pulse pa	quiz 5x10	pulse pa
		worth	weather	worth	weather	worth
12	12	88	4.94	130	26.04	170
13	12	95	5.4	110	25.61	180
14	13	100	5.43	130	24.87	160
15	13	97	4.9	120	23.12	170
16	13	87	5.25	140	26.02	180
17	13	69	4.88	12	24.16	160
18	15	76	5.2	110	27.01	160
19	15	83	4.69	130	23.17	180
20	15	73	4.7	160	25.09	190
21	15	77	4.38	140	24.92	180
22	15	84	5.79	130	27.84	170
23	15	93	5.1	120	25.04	150
24	15	92	5.45	130	27.78	170
25	15	70	5.22	110	26.87	180
26	16	72	4.51	150	24.92	160
27	16	93	5.1	110	25.59	170
28	16	81	5.99	130	25.76	160

29	16	86	4.66	120	24.19	180
30	16	73	4.99	130	26.02	160
31	16	74	4.65	120	25.34	170
32	16	91	4.85	130	25.83	180
33	16	85	5.04	140	26.29	160
Obtained results						
Half	16	82	5	125	26	167
Median	16	85	5.04	130	25.76	170
Standard D.	0.5	9.1	0.42	12.1	1.0	10.1

Font: Own elaboration

The results show advances in both ages and selected samples behaving in the appropriate and very appropriate ranges, which allows some similarities in their results.

DISCUSSION

Conditional capabilities: are defined as “energetic qualities - functional, of performance, that develop as a result of conscious motor action and that, at the same time, constitute conditions of these motor actions and of others to be developed” (Ruiz, et al., 1989, p.85). They are determined by the energy factors that are released in the processes of exchange of substances in the body as a result of physical work. These abilities are: strength, speed and endurance.

The developed work improved the effectiveness, taking into account the shortcomings

detected and work them from the multipower of the exercises in this case the speed, which allowed to give an individualized treatment to the selected capacity allowed to know its effects with the application of the selected distance.

Other relevant aspects in this period were: the more frequent use of the tour as an organizational procedure and pulse control. The application of the speed test shows that all the groups organized by chronological ages improved their results. To evaluate the significance of the changes that occurred for a level of 0.05, the Wilcoxon rank test was used. It showed a value of 0.000 that allows rejecting the null hypothesis. This shows that the changes that occurred in the quality of execution of the motor actions were statistically highly significant.

The systematization of the theoretical and practical references from the applied methods show a comprehensive approach to the need to integrate physical abilities into the training process and take into account speed as a fundamental indicator in preparation.

The results obtained show progress in the tests applied to both age categories, which made it possible to take into account the comprehensiveness of the work components for training planning.

It is evident that the mean of the results of the value at rest in the older category behaves adequately between the 1st test and the 2nd test. In the sub-16 category, the average of the results of the value at rest behaves adequately between the 1st test and the 2nd test. This shows that the results are generally adequate in the proposed indicators.

These results from the Wilcoxon ranges show coincidences and satisfaction in their application. It is collected that the results obtained show the need to incorporate the development of conditional physical capacities in the integrality of the preparation.

BIBLIOGRAPHIC REFERENCES

Bangsbo, I. (1998). *El centro campista*. Madrid: Editorial Gymnos.

Caspersen, C., Powell, K. y Chritenson, G. (1985). Physical-activity, exercise-fitness definitios and distinctions for health-related research. *Public Health Reports*, 100(2), pp. 126-131.

De la Cruz, E. y Pino, J. (2010). *Condición Física y Salud*. [En línea] available at: <http://digitum.um.es/xmlui/bitstream/10201/6621/1/CONDICI%C3%93N%20F%C3%8DSICA%20Y%20SALUD.pdf> [Último acceso: 27 abril 2014].

Del Canto, C. y otros. (2001). *Orientaciones Metodológicas Educación Física (fútbol)*. Primera ed. La Habana: Pueblo y Educación.

Díaz, F. y Carabeo, A. (2001). *La recuperación del deportista*. [En línea] Available at: <http://www.efdeportes.com> [Último acceso: 8 abril 2014].

Ruiz, A., López, A., Ferrer, A. & Andux, C. (1989). *Gimnasia Básica*. La Habana: Ed. Pueblo y Educación.

Vera, J. (2007). *Propuesta metodológica para el entrenamiento de las acciones técnico-tácticas del tiro a portería en los futbolistas de la categoría 13-14 años* (Tesis doctoral). Instituto Superior de Cultura Física “Manuel Fajardo”. La Habana.