



A Methodological Alternative to Train Vertical Float in Artistic Swimming

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ABSTRACT

Introduction: Artistic swimming in Cuba is ruled by the international standards of the International Federation of Artistic Swimming (FINA) (2017-2021). Nationally, the technical skills are assessed in the water and on the ground in the 9-10 category. One of the technical tests in the water is float measurements in different positions.

Aim: To design a methodological alternative for training the vertical float position in 9-10-year-old athletes of artistic swimming.

Materials and methods: The procedures used permitted to provide the rationale for the scientific outcome, determine the existing flaws in practice, and the statistical data processing.

Results: The methodological alternative relies on theoretical rationales for physical and technical training of artistic swimming. It has three stages with the proper arrangement of the non-customized components of the process and the methodological indications.

Conclusions: The practical results enabled the validation of the alternative.

Keywords: methodological alternative, floating vertical position, artistic swimming





INTRODUCTION

Artistic swimming in Cuba is ruled by the international standards. Nationally, the technical skills in the water and on the ground are assessed at 9-10 years of age, since the sports technique is one of the main components of the process of sports training management, with a critical importance in the starting stages (Soutelo *et al.*, 2021; Fonseca Aguilar, and Fonseca Castañeda, 2021), as the technical training is given higher priority in the early ages, to inculcate the specific motor habit more efficiently.

Float measurements in different positions in the water is one of the main technical tests, with the vertical position as the most complex one to domain. Upon mastery, the other positions are improved as well. The 9-10-year-old category competes within the technical tests in this position, whose main feature is that it involves the body only, no hand movements.

The diagnostic of the current situation was based on documentary analysis, surveys, and observation of the coaches and athletes of artistic swimming, which revealed that,

- The integrated programs of athlete training did not reveal the sufficient methodological indications that orient the form of conducting training of the vertical float position.
- The quality of the technical performance was discreet, since the athletes failed to stay in the axis for the required time, and remarkable unbalances were observed.
- The exercises were not regularly planned, so that the work in similar conditions to those of the competition, following on ground preparation, whose mastery indicate the time for the in-water practice.

These regularities helped unveil the following problematic: shortcomings in the training of the vertical float position in 9-10-year-old artistic swimming athletes. Accordingly, the aim of this paper was to design a methodological alternative for training the vertical float position in 9-10-year-old artistic swimming athletes.

MATERIALS AND METHODS

Methods and techniques such as the analytical-synthetic, inductive-deductive, systemic-structural-functional, documentary analysis, observation, survey, and mathematical-statistical methods. They helped provide a rationale for the physical-technical training in sports, design the scientific result, and process the data collected during the diagnostic. The study included eight athletes in the 9-10-year-old category in the province of Camaguey, of which three were ten, with two years





of sport practice; the other five athletes were nine, and one year in the sport. Two pedagogical tests were applied in the trainings (weeks 15 and 25). A competition in week 31 of the teaching program was used as a reference, and qualified as a third analysis. The technical tests measured the floating vertical position. The scale used had five points, similar to the national competition (Table 1).

Table 1. Scoring range of the vertical position

Scoring range							
Scoring	5	4.9-4.5	4.4-4	3.9-3.5	3.4-3	2.9-2	0
Time (sec.)	Over 10	9-10	7-8	5-6	3-4	2	Never placed on axis.

RESULTS AND DISCUSSION

The methodological alternative designed according to the theoretical rationale that characterize the physical-technical preparation for artistic swimming, by Brito Vázquez, E. & Bacallao Llanio, I. M. (2013), Hernández Mendizábal, S. (2015), Ortiz Uribe, M y Palacio Palacio, J. A. (2006), was followed during the stages succeeding the non-customized-component organizational process that rules the vertical float position of athletes.

Objective

To enhance the training of the vertical float in 9-10-year-old athletes based on individual technical development, the competitive demands, and the development of their physical conditions.

Stage I. A diagnostic of the physical-technical training level of 9-10-year-old artistic swimming athletes

It will be determined through observation of the vertical position when the coach observes that their athletes have no domain of the vertical position, even when every methodological step has been taken in the teaching process.

During the observation, the athlete must perform the vertical position with exactly the same positions performed during the competition. Every necessary observation will be made from every angle of the pool to detect the shortcomings of the physical condition that keep the athletes from performing all the technical components of the vertical position. The observation revealed the existence of faulty execution of the vertical position by all the athletes. Accordingly, this issue needed to be addressed through the corresponding tests.

An initial diagnostic test was made to know the physical-technical level of the athletes when executing the vertical position. It was conducted in week 15 of the Overall Basic Training stage. It began at three in the afternoon, when the in-water





training starts, following the same characteristics of the competition: executing the vertical float, just the body without moving the arms, by the ankles, for ten seconds. The objective of this test was to evaluate the execution of the vertical position within a 2.5-3-point range.

Regarding the principal and secondary errors declared, they have been established in the methodology for the teaching of the basic positions, adding those with the lowest scores recorded in the observation guide. It is an essential element to consider for control, according to the interests pursued by the research, and to unveil the objective behavior of the athlete's technical execution.

The common execution errors associated with the vertical float are with the arms (moving, placing them forward and backward); head (moving forward and backward); trunk (moving it forward and backward); legs (forward, backward, semi-flexed); feet (separate, little tipping); execution time (not beyond 10 seconds).

Stage II. Organization and execution of the training tasks for the vertical position

The exercise plan took into account the completion of the teaching program; in other words, if in-water training sessions have been conducted when oriented; the training time and number of hours, as well as the conditions of the sports facilities and the predominant energy system and the heartbeat frequency. The necessary physical capacities are the strength and coordinative (Hernández A., 2021; Ortiz Uribe, M and Palacio Palacio, J. A., 2006; and Rodríguez Fernández, J., 2018).

Group A. Special ground exercises

Specific objective: to familiarize the athlete with all the technical aspects for proper execution of the vertical float in the water.

These set of exercises are intended for athletes to adopt the proper vertical axis and to learn to make body hyper-extension, trying to rise using their feet without changing their position. It also is intended for athletes to learn to maintain the needed neuromuscular contraction to execute the vertical (Brito Vázquez, E. & Bacallao Llanio, I. M. (2013). Another aspect is to adapt the sense organs in an inverted position to have a correct spatial position and balance, such as,

1. Lying on the floor, on supine cubital position, adopt the vertical position with the arms upward, as if floating in the water, trying to place all the parts of the body to the floor.
2. Three-point stance on the wall, trying to rise upward using the feet, with the coach's assistance. Then it can be done by pairs.
3. Hand stand on the wall spreading the legs slowly in V position, and back to normal with the coach's assistance. Then it can be done by pairs.





4. Hand stand on the wall, the instructor moves the feet from the vertical axis and the athlete must bring them back to the right axis slowly. Then it can be done by pairs.
5. Hand stand pushing the floor with the hands and trying to rise upward using the feet, with the coach's assistance. Then it can be done by pairs.
 - Training methods used: Discontinuous, with repetitions and variable repetition exercises.
 - Aids used: The wall and wall bars.
 - Application frequency: Two or three times a week.
 - Dosage: The position will be kept for around 30", with a micro-pause of 1', and a macro-pause of 3'. Every series will have 3-6 repetitions.
 - Technical aspects to be considered. All the body contracted adopting the vertical axis; the legs well-extended and joined by the tips of the feet. The chest must remain hollow.

Methodological indications

1. The coach will see that her hand does not fit under the waist of the athlete, the floor, or wall.
2. To corroborate if the legs are joined, the coach could spread the feet slowly by the tips, if they are truly joined, they will not separate.
3. Alternatively, the exercises can be performed using the nose clip to simulate apnea training during this position in the water.

Group B. Special exercises in the water

Specific objective: To favor the gradual acquisition of body domain and balance in the water.

These exercises are intended for the athletes to maintain balance and control of their bodies though no part of the body, namely a leg or both legs, in the vertical; it can help them maintain the gravity centers stable and controlled. The wall is used as a reference of the needed vertical axis for execution, Hernández Mendizábal, S. (2015), Fuentes, A. (2019) and Rodríguez Fernández, J. (2018). Some exercises are illustrated.

1. Supine floating (emphasis on rising using the arms and legs).
2. Prone float (emphasis on rising using the arms and legs).
3. Vertical float against the wall, spreading the legs slowly to a V position, and closing them back again.
4. Vertical float against the wall, moving a leg forward then to initial position. One foot at a time.
5. From a sunken position, against the wall, stretching the legs slowly to reach a vertical position, then maintaining the same position.





6. Split float and closing the legs slowly to a vertical position with the ankle, maintaining the vertical position.
- Training methods used, application frequency, and dosage. Like the previous.
- Aids used: The straight edge of the pool.
- Technical aspects to be considered: All the body contracted adopting the vertical axis; well-extended legs joined by the tips of the feet.

Methodological indications

1. The coach will see that her hand does not fit between the waist of the athlete and the wall.
2. If the athlete finds it hard to stay by the wall, the coach will help make it, until the athletes can do it on their own.
3. The spread leg exercises in V position require the coach to check for the athletes to close the legs at the same time; in the split float, both legs must close simultaneously and the trunk will sink at the same time the legs close to reaching a vertical position by the ankles.

Group C. Special paired exercises (in water)

Specific objective: to ensure the control and recovery of the body balance in the different positions adopted.

These exercises are intended for the athletes to recover their balance and control of their bodies in the vertical upon losing them; it can help the athletes maintain the gravity centers stable and controlled. The wall is used as a reference of the needed vertical axis for execution (Hernández A., 2021).

Vertical float: the coach takes the feet off the water slightly on the vertical, and the athlete should put them back on the right axis, maintaining their position (A. The right side; B. The left side; C. To the front; D. Back).

1. Hang back from the edge, top height vertical. A pair of athletes or the coach will put on an elastic band by the ankles, and will pull the feet out of the vertical axis, while the athlete must keep the right position.
2. Hang from the edge, facing it at the top height vertical. A pair of athletes or the coach will put on an elastic band by the ankles, and will pull the feet out of the vertical axis, while the athlete must keep the right position.
- Training methods used, application frequency, and dosage. Like the previous.
- Aids used: The straight edge of the pool and elastic bands.
- Technical aspects to be considered: All the body contracted adopting the vertical axis; the legs well-extended and joined by the tipping feet.



Methodological indications

1. The coach will see that her hand does not fit between the waist of the athlete and the wall.
2. The elastic band exercises will require little effort by the pair.

Stage III. Comprehensive evaluation of the vertical position training in 9-10-year-old artistic swimming athletes

Two pedagogical tests were applied in the training period (weeks 25 and 25) during the Overall Basic Training stage. A competition in week 31 of the teaching program was used as a reference too, and qualified as a third analysis during the Consolidation of the Teaching Program stage. The tests were conducted to evaluate the technical preparedness of athletes, and measured the vertical float position without arm movements, maintaining the same position for ten seconds. The scale used had five points, similar to the one used in the national competition.

The quantitative assessment shown in Table 1, as well as the qualitative assessment through the observation form, will help make a comprehensive analysis of the athlete's performance in the vertical float position. It will enable the identification and further correction of technical errors, and the determination of training contents to develop the special physical condition to maintain the required position along the time set by the rules of the competition (Figure 1).

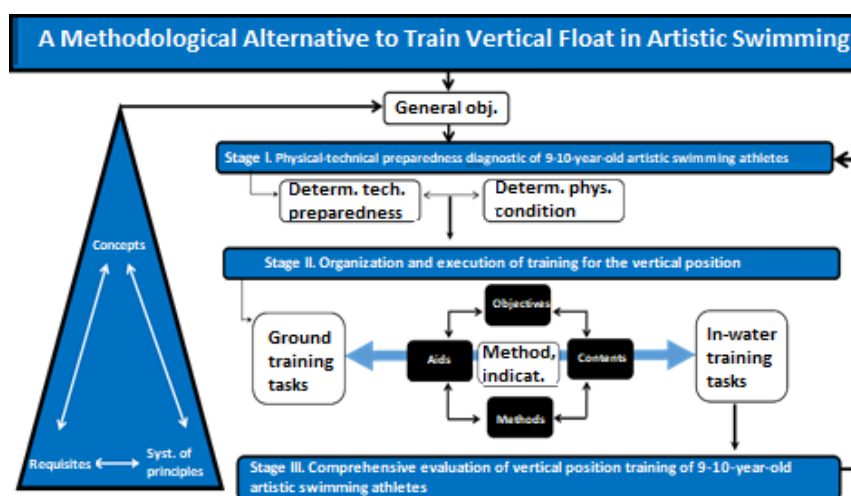


Fig. 1. Graphic representation of the methodological alternative

The outcome of the methodological alternative for training the vertical float position in 9-10-year-old artistic swimming athletes was corroborated through several different evaluations. They facilitated assessment related to the completion of the exercise blocks for different settings, which had been dealt with by Hernández Mendizábal, S. (2015) and Rodríguez Fernández, J. (2018).

The second test was conducted in week 25 of the teaching program Overall Basic Training, with the same characteristics of the former test. In general, there was a





clear improvement as the athletes were able to adopt the position correctly. Then, they must continue the training and repetitions harder, and maintain the position longer to enhance aerobic endurance (Table 2).

Table 2. Final outcome of the third test, and comparison with the first and second tests

Athletes	Score first test	Score second test	Score third test
I	3.2	3.7	4.5
II	2.3	3.2	
III	0	2.7	
IV	2	2.9	
V	2.6	3.4	
VI	2.9	3.9	
VII	2.8	3.5	
VIII	3.4	4.2	4.6
Mean	2.4	3.5	4.5
Above the mean	5	3	1
Within the mean		1	1
Below the mean	3	4	
Expected result	2.5-3	3-3.5	4.5-5

Qualitative and quantitative analyses of the third test

The average qualification was 4.5 points, while the mean was 4.5 (within the scoring range for this stage, 4.5-5 points). Thus, one athlete reached qualifications above the mean, while another was in the mean. Two athletes were in the expected range for this training stage (4.5-5).

In this test, only two athletes took part, due to the announcement for the national meeting in 2019. The two athletes received satisfactory qualifications, and were assessed in the technical tests as good. One of them was chosen as the most technical athlete of the competition, and the province was given the technical award during the technical tests.

A comparison of the third test with tests 1 and 2 showed that the athletes improved their qualifications in relation to the most frequent errors, posture definition, and every part of the body, according to the standard for the correct vertical position. Moreover, the athletes maintained the 10 seconds set in the correct axis. The most frequently observed errors were the feet, which were not properly tipped, and the body was not completely hyper-extended.





CONCLUSIONS

The theoretical and methodological rationale for the physical-technical training of artistic swimming revealed the need for a training-content arrangement that simulates and models sports competition in this area increasingly.

The current characterization of the physical-technical preparedness of the 9-10-year-old athletes of artistic swimming in Camaguey showed technical defects and the absence of methodological arguments on how to train this float position in the sport.

The components of the methodological alternative rely on the theoretical foundations of the physical-technical training. The stages of the non-customized organization components were modelled to encourage the proper vertical float position.

The results of the practical implementation of the methodological alternative demonstrated their effectiveness based on the results of the technical tests.

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The authors declare there are no conflicts of interests whatsoever.

Author contribution statement:

Ainat Alicia Nápoles Céspedes. Introduction, results and discussion, references
José Ignacio Ruiz Sánchez. Methods, results and discussion, conclusions.

