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SPECIFICS OF THE ALGORITHMIC PRESCRIPTIONS IN THE LEARNING PROCESS OF THE GYMNASTICS EXERCISES' TECHNIQUES

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Abstract
The technology of training gymnastic exercises demonstrates a series of groupings of the most rational and optimal methods; however, the algorithmic type prescriptions are considered the closest to the effective achievement of the theoretical-methodological and practical objectives (in order to acquire the technique of gymnastic exercises with an increased degree of difficulty). Thus, the specificity of algorithmic prescriptions implies a set of programmed actions, which from a structural and functional point of view, are organized and carried out according to a specified manner of going through and respecting some normative principles and laws in order to achieve a concrete task. The programmed actions of the algorithmic type are used procedurally, providing conditioning and mutual influences in approaching the subject of study, determining, at the same time, their integrative aspect. Namely, the sequence of the planned actions makes up the scheme of the program, carried out in a logical order, scientifically based and strictly established. Based on the algorithmization follows the execution or the methodical application of the program and its evaluation, focused on the reverse connection.

Obviously, algorithmic prescriptions condition the development of a strictly determined scheme and the uninterrupted performance of various motor actions. At the same time, they impose the order of value of the development of the obtained components, orient to the rationality of the selection of the most effective means regarding their acquisition, lead to the urgent correction and to the determination of the exact ways to intervene on the removal of the mistakes that have appeared, the precise assessment of the point from where the resumption of the movement begins.

When dividing a whole into constituent parts, it is necessary that they be classified or arranged according to their common characteristics, such as the movement of certain segments in the same direction, with the same mode of symmetry, speed, amplitude, the increasing order of the degree of difficulty, etc., which allow the identity of the phases and their positive transfer by extrapolation on other actions and, obviously, which does not contradict the physiological and psychological-pedagogical mechanisms of motor skills formation. Following the reverse connection, the training of the exercises, according to the algorithmic prescriptions, allows the establishment of an adequate system, which offers the possibility of obtaining efficiencies both in time and in the quality of learning the technique of gymnastics exercises.

Keywords: gymnastics, technology, training, exercises, algorithmic prescriptions.

Introduction

Algorithmized prescriptions represent a set of programmed actions, which, from a structural and functional point of view, are organized and carried out according to a specified manner in compliance with normative rules and laws, in order to achieve the intended objectives. The programmed action steps are used procedurally, providing conditioning and mutual influences, determining, at the same time, their integrative aspect.

With the increase in the degree of difficulty of the exercises in modern artistic gymnastics, the algorithmic prescriptions become effective mechanisms for training the

technique of the elements, constituting the essential methodological landmarks, through which the most complicated execution techniques can be mastered.

In the exposed context, the practice of training exercises demonstrates a series of groupings of the most rational and optimal ways of acquiring the technique of gymnastics elements, but closer to the limit of theoretical-fundamental possibilities are, however, algorithmic prescriptions [2], [3], [17].

Thus, mastering the technique of performing various exercises in modern gymnastics requires specific elaborations, the content and sequence of which make up the concrete scheme of the program of actions. Based on the algorithmization, then follows the execution or the methodical application of the program and its evaluation, focused on the reverse connection.

At the same time, algorithmic prescriptions can become more acceptable according to their value importance, if all the links of the instructional chain will be closely related to each other.

In another vein, the algorithmic approach to mastering various techniques and complicated movements such as those in artistic gymnastics becomes absolutely necessary and useful, because, in most cases, only by means of algorithmic prescriptions can one master the ultra difficult segments, as well as the technique of different elements as a whole.

Certainly, these methodical peculiarities are not observed during sports competitions, but they are fully manifested during intensive training, namely when the movements are of a high degree of difficulty.

Considering that the multi-year training process constantly encounters such elements (with an increased degree of difficulty), the algorithmic prescriptions can be applied in all classification categories. In addition, they can be applied to all apparatus of competitive polyathlon, both in the men's program and in the women's program.

In another interpretation, the algorithmic (algorithmized) method represents a component part of the programmed training, directed by the scenario of directing the wide range of movement actions. Algorithmization represents a division of the components that form the whole of a technique (an exercise) into subdivisions or constituent details, which are to be acquired in a logically grounded and strictly established sequence and order [1], [5], [11].

In other words, algorithmic prescriptions provide for the division of the study material, an instructional task, a whole, etc. in constituent parts, in determined doses or in portions, the training of which is carried out rigorously in a perfectible sequence. Obviously, the algorithmization must reflect the importance and the order of value of the sequence of development of the components (details) obtained, the rationality of the selection of the most effective means regarding their acquisition, the urgent correction and exact ways to intervene on the removal of the mistakes that have appeared, the precise assessment of the starting point resumption of the motor action, etc.

It should be mentioned that the transfer or transition from the appropriation of one fragment to another is fulfilled only on the condition of the perfect appropriation of the previous fragment.

At the same time, the algorithmic approach requires the development of a strictly determined scheme and the uninterrupted performance of different motor actions, at the same time intensifying the activity of all participants in the instructional process [3], [9], [14].

Finally, training exercises according to algorithmic prescriptions provides positive results. The sought-after skills and motor skills are acquired quickly and, in particular, without considerable mistakes.

Methodology

The working **hypothesis** boils down to the fact that combining the information that describes this approach and bringing this information together in a concept where you can find the right statements of this methodology will give you the opportunity for specialists in the field, coaches, teachers, students, athletes of all categories and others people interested in knowing the essence of such an approach, and the examples that are described in the present study can also be useful for the acquisition of other elements, respecting the elaborated consecutiveness described.

The **purpose of the study** resides in the theoretical-methodological argumentation of algorithmic prescriptions and the efficiency of their application to the basis of sports training in artistic gymnastics. Such an approach, through which the technique of exercises with a high degree of complexity can be mastered, will be able to rationalize the process of training specific motor skills for all competitive polyathlon devices, and, obviously, to the effectiveness of mastering competitive artistic compositions.

The **objectives** of the research reveal:

1. Research and generalization of the data and information presented in the specialized literature with reference to the issue of the methodology of training the technique of complicated elements by means of algorithmic prescriptions.
2. Development of algorithms that describe the sequence and contiguity of instructional sequences, the essence of which will give you the opportunity to learn the technique of executing elements with high accuracy, without wasting time and resources.
3. Elaboration and presentation of certain recommendations that the practice of learning exercises with a high degree of difficulty requires by applying algorithmic prescriptions to the basis of training lessons.

It should be noted that when developing the algorithms of a technique, they must coincide maximally with the structural aspects of the exercise. Each of the algorithms represents in itself the independent performance of some fragments or sequences of the technique, the technique thus obtaining a lower degree of complexity, and where, these particularities are maximally similar to the actual technique of performing the exercise according to the regulatory descriptions.

Obviously, the success of learning complicated physical exercises depends a lot on the correctness of the selection and application of the helping exercises. However, it is necessary to consider the following:

- the auxiliary exercises must be similar in structure to the basic movement that is being mastered;
- the application of the auxiliary exercises must correspond to the successive order regarding the increase in the degree of difficulty or weight, both according to the character of the coordinative complexity, as well as according to that of the muscular efforts;
- performing various auxiliary exercises, provided they are structurally coincident, in order to positively transfer motor skills;

- the inclusion in the training system of some new auxiliary exercises is fulfilled with the condition of the qualitative performance of the preceding (previous) exercises;
- the selection of this type of exercises must also provide for the athlete's general motor training level, individual differences and others [4], [8], [10], [13], [15].

This approach also becomes useful due to the fact that during the performance of the auxiliary exercises, those qualities and motor capacities are developed, which the gymnast needs in the actual performance conditions, while also perfecting the corresponding motor skills [2], [7], [12].

In other words, the full study of the motor activity is determined by the depth of knowledge of the dynamic structure of movements with the highlighting of interactive links or the interaction of active, reactive and external muscular efforts, which contributes to the understanding or deep perception of this picture, and which represents what the movement looks like "on the inside".

The algorithmized approach to learning the technique of difficulty exercises provides for the complex application of analytical and instrumental working methods. The complex character implies records of the specific characteristics and particularities of movement evaluation (tensiometry method, electromyography); analytical calculations regarding the kinematics and dynamics of movement characteristics that can be obtained from video recordings; qualitative assessment at the highest level of the fundamental constituent phases of the exercise or the technical element and others.

In the same sense, the algorithmic prescription approach provides, in the foreground, the useful highlighting of the component parts of the movement, the consecutive training of each of these components and, finally, their coupling into a "whole", which represents the technique actual exercise.

Each exercise must be concrete and accessible, but at the same time, it must not produce fundamental changes in the structure of the integral acquisition. Within this approach, the application of control tasks is widely used, which represent various motor actions corresponding to the component parts of the exercise, performed under certain conditions. Such a variant called the "method of performing particular motor tasks" is characterized by the appropriate selection of various series of instructive tasks, which, in turn, contain component parts of the basic or fundamental movement technique (which adheres to the linear disassembly of the method algorithms). Its specificity contributes to clarifying the correct ideas and representations about the technique of the actual exercise, detecting and further removing the most serious mistakes that occurred when perfecting the motor actions in order to fully perform the exercise and others [6], [8], [9] .

It should be mentioned that when learning the technique of many exercises, the performance of particular motor tasks is applied following the dismemberment carried out, which allows for a detailed description of the movement structure, the assessment and determination of the main and particular tasks, the description of instructive motor actions and fundamental motor skills, the sequence of performing the tasks motor skills, the arsenal of means through which it is possible to perform various tasks, etc.

When dividing a whole, it is necessary that the algorithmic prescriptions be classified or arranged according to their common characteristics, such as: the movement of certain segments in the same direction, with the same mode of symmetry, speed, amplitude, etc., which allow the identity of the phases and their positive transfer to others actions and, obviously, does not contradict the physiological and psychological-pedagogical mechanisms of training motor skills [1], [3], [10], [16].

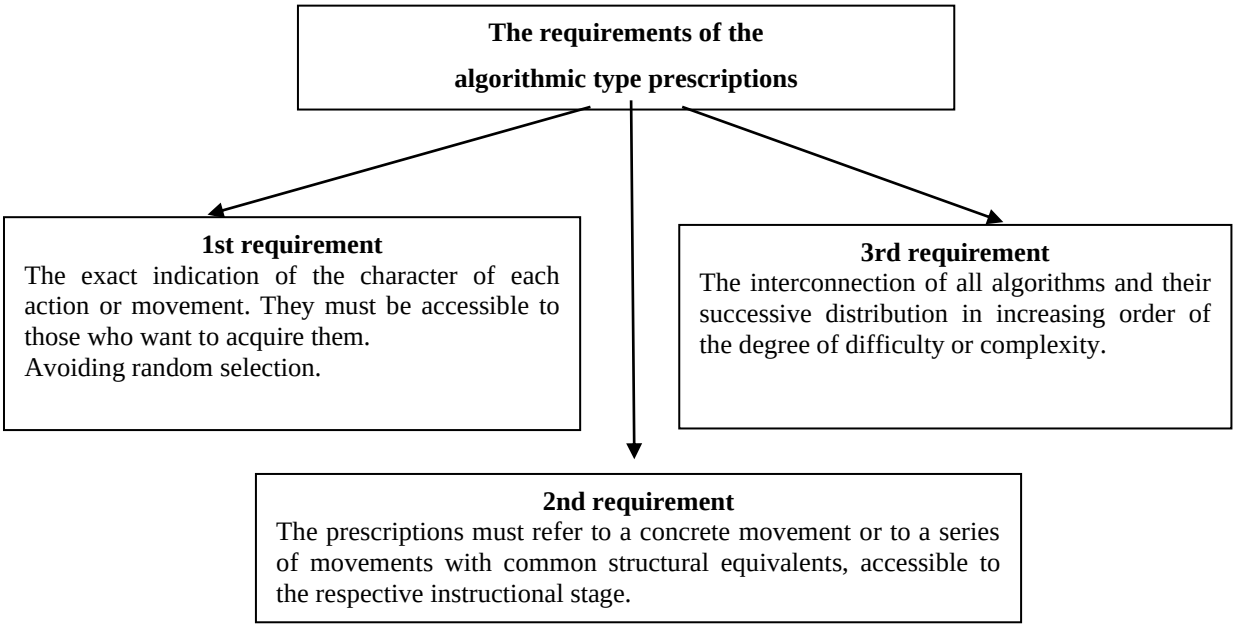
Finally, the "connection" of different algorithms into a whole following the inverse connection allows the establishment of an adequate system, which offers the possibility of obtaining the best performing results by the subjects.

RESULTS

In the respective study, some elaborations can be highlighted regarding the basic requirements provided by the algorithmic approach to training the technique of gymnastics exercises (presented in scheme 1) and the basic structural elements of the algorithmic type prescriptions (presented in scheme 2).

Requirements for the application of algorithmic prescriptions in the practice of training gymnastics exercises

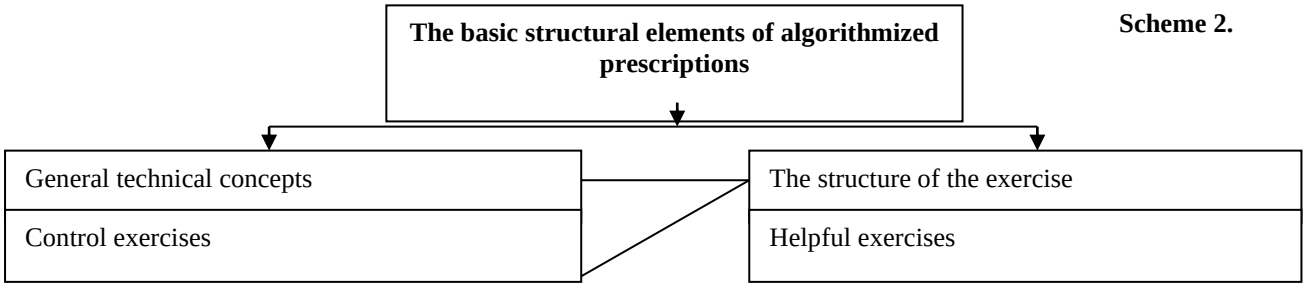
Scheme 1.

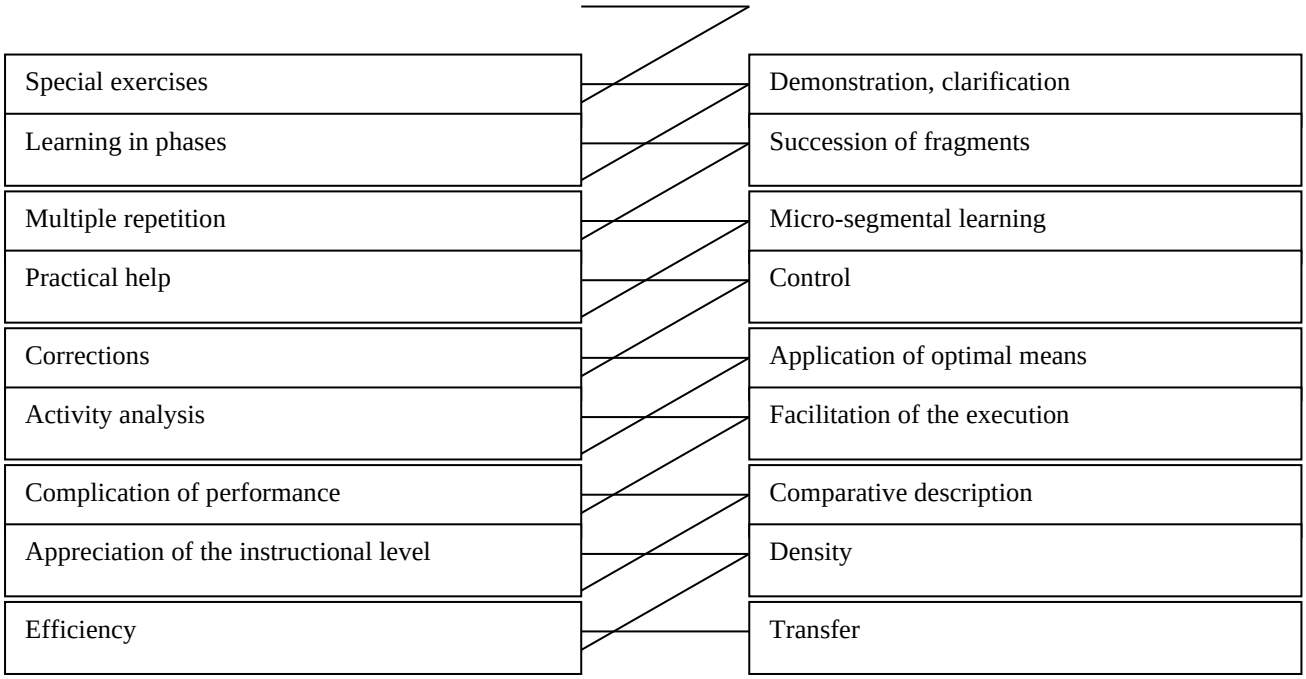


Compliance with the requirements stated above can provide positive results regarding the acquisition of the technique of different exercises, and the particularly conscious activity of the performers gives the possibility not only to practically carry out a series of actions, but also to be able to direct their training process within the independent thing.

Another constructive element in learning the technique of gymnastic exercises based on algorithmized prescriptions is the basic structural elements, being, at the same time, the main means of information. Each element can be exposed as a fragment or portion of the material, extracted following the division of a whole and arranged in relation to other elements in a logical and welcome order for realization.

Scheme 2.





However, it is necessary to specifically highlight the role of algorithmized type prescriptions with a practical character, because they are determined by their concrete activity content and achieve the fundamental operational objectives. They contain a series of specific actions, which are intended to perform the technique of complicated elements and other important activities of the training process. They may also include some provisions and work instructions, comments and urgent recommendations depending on the application of technical equipment, various intuitive materials, etc.

Conclusions

Algorithmized prescriptions aimed at acquiring the technique of gymnastics exercises are exercises that directly condition the effective acquisition of motor action. Depending on the structure of the exercise, they are also present as some normative requirements, which oblige or impose to perform one action or another in a planned form in time, which ensures the most optimal and rational possibilities for the effective realization of the training of the technique of the element. For example, acrobatic elements performed on various apparatuses of the competitive polyathlon (by which the "acrobatics" of gymnastics is implied), the gigantic far grip, rotating movements around different axes, turns performed in various phases of flight, combined jumps, etc.

Algorithmized type prescriptions also include actions characteristic of acquiring the skills of appreciation and differentiation of performing movements in space, in time and also depending on the degree of muscular efforts. These particularities, namely, the degree of accuracy and precision of differentiation (space, time, force) usually depends on the complexity of the coordination level of the exercise that is being mastered. In some cases, it is enough to appreciate only the amplitude of the swing or the degree of bending and unfolding of the body, but sometimes the speed of movement or the degree of muscular effort. When performing more complicated exercises or with a high degree of difficulty, it is necessary to apply the specific differentiations in complex, which, in fact, ensure the

conditions for the correct performance of the fundamental actions, which constitute the technical basis of the exercise.

In another way, the algorithmic type prescriptions are equivalent to the auxiliary exercises which, in most cases, become component parts of the technical element. Here, the full acquisition of the exercise technique takes place in simplified conditions with the help of trainers, installations and other devices and technical means of training.

In all cases, it is necessary to take into account the individual differences of each subject, the preparation of the subjects to perform the tasks, the evidence of the correctness with which the athlete performs the action, the order of transition from one type of tasks to another, etc.

Algorithmized prescriptions allow operationalization with various other representative subjects of knowledge. In this context, algorithmic prescriptions can be applied both to intellectual operations, logical thinking, etc., as well as to physical actions of any complexity. As a rule, algorithmic prescriptions should be well-defined, known and monosemantic (with only one meaning).

It is important that, within the application of algorithmic prescriptions, all necessary tasks and motor actions rational by structure, volume, content and also the ways of the reverse connection (reverse links) and reproduction, various forms of control and evidence regarding the assessment of the degree of accuracy are provided within the fulfillment of objectives, etc.

In the sense of what has been said, it is important that all participants in the training process show maximum activation in order to correctly fulfill all the actions exercised. Also in this context, it is necessary to know perfectly the system of arrangement of the algorithmized prescriptions and to highlight the most emphasized ones.

It can also be concluded that algorithmic prescriptions **condition**:

- permanent preservation of the biomechanical structure and the biomechanical essence of the studied exercise (dividing the exercise into large proportions (high doses) can lead to the appearance of many mistakes, and these, in turn, require a series of corrections);
- preserving the essence of the "law of effect" in the optimal conditions for the appearance of changes through learning;
- the availability of the instructional program, which includes the selected study material and experimental evidence;
- disassembling the study material into a series of closed cycles and presenting them in the form of training "steps";
- the operativeness and active attitude of control and evidence, which allows to produce urgent (immediate) changes in the training process and to intervene with some aids or to call for additional information;
- the differentiation of the meaning (course) of the training expressed both by the quantitative variation of the material portions (increasing or reducing them), as well as by the qualitative variation of the content, which can lead to various instructional strategies;
- the application of technical means with the role of facilitating some presentations of the instructional material and the control over its acquisition.

Certainly, the result of the performance in the multi-year training process depends on the correctness of this issue.

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