



Relationship of the structure of coordinational preparation and stability of competitive activity of female rhythmic gymnastics athletes

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Dr. Hab. **O.A. Dveyrina**^{1,2}

Dr. Hab. **I.A. Viner**¹

Dr. Hab. **R.N. Terekhina**¹

¹Lesgaff National State University of Physical Education, Sport and Health, St. Petersburg

²The Federal Training Sports Center of the representative teams of Russia, Moscow

Corresponding author: olga.dveirina@mail.ru

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Abstract

Objective of the study is to justify the introduction of new formats of cultural and sports events that ensure the growth of sports skills of gymnasts and allow, by taking into account the mechanism of interconnection of the structure of coordination readiness, to increase the stability of the competitive activity of female athletes in rhythmic gymnastics.

Methods and structure of the study. At the first stage, the mechanism of the relationship between the structure of coordination readiness and the stability of competitive activity of female rhythmic gymnastics athletes was identified. At the second stage, new formats of cultural, sports and public events were introduced, ensuring the growth of the sports skills of gymnasts. The study was conducted during 2021-2024. on the basis of the sports complex «Irina Viner-USmanova Gymnastics Palace». More than 300 athletes of various levels of preparedness were examined.

Results and conclusions. Due to the variety of conditions formed by the specifics of the gala concert, unusual lighting and sound, different from those typical for educational, training and competitive events, athletes during rehearsals and, in fact, performances at the gala concert, had the opportunity to supplement the motor programs of the elements of competitive exercises with sensory ones. corrections that ensure the construction, coding and correction of movements of all limbs of the body relative to each other in the coordinate system of one's own body.

Keywords: *rhythmic gymnastics, structure of coordination readiness, sensory systems.*

Introduction. One of the pressing problems in the theory and practice of sports is the search for ways to determine the structure of training in accordance with the specifics of the sport, contributing to the achievement of athletes' preparedness, necessary and sufficient to ensure the competitiveness of sports teams of the Russian Federation in the international arena [2]. A decrease in the intensity of competitive practice among gymnasts due to restrictions related to COVID-19 in 2020-2021 and the exclusion of Russian gymnasts from participation in competitions under the auspices of the FIG from 2022 required the search for new formats of educational and training events that contribute to the formation of integral preparedness of female athletes, ensuring the growth of sportsmanship.

Objective of the study was to justify the introduction of new formats of cultural, sports and mass events that ensure the growth of sports skills of gymnasts and allow, by taking into account the mechanism of interrelation of the structure of coordination readiness, to increase the stability of the competitive activity of rhythmic gymnastics athletes.

Methods and structure of the study. The research protocol included a theoretical analysis and synthesis of scientific literature and documentary materials (competition protocols), pedagogical observation of the competitive activities of gymnasts, and analysis of video recordings of performances in cultural, sports and public events. At the first stage, the mechanism of the relationship between the structure



of coordination readiness and the stability of competitive activity of female rhythmic gymnastics athletes was identified. The data was obtained by the analyst of the department of scientific and methodological support of the Federal State Budgetary Institution «TsSP» O.A. Dveirina in the course of scientific and methodological support for the Russian national team. At the second stage, new formats of cultural, sports and public events were introduced, ensuring the growth of the sports skills of gymnasts. The study was conducted during 2021-2024. on the basis of the sports complex «Irina Viner-USmanova Gymnastics Palace». More than 300 athletes of various levels of preparedness were examined.

Results of the study and discussion. Rhythmic gymnastics is a complex coordination (technical-aesthetic) Olympic sport in which female athletes compete in technical skill and expressiveness in performing complex body movements in combination with manipulation of objects (rope, hoop, ball, clubs, ribbon) to music. Everything must be presented in an imaginative artistic form for the audience to perceive the movements. The modern viewer expects complex, exciting, record-breaking and beautiful combinations [1]. Music and lighting have a great influence on the quality of gymnasts motor activity. The results of the analysis of the competitive activity of gymnasts made it possible to identify a decrease in the stability of performance when performing in unusual conditions (another hall, lighting, ceiling size, sound localization, the presence of a large number of spectators, etc.). This is especially noticeable among sports reserve gymnasts, who have the opportunity to compete with the strongest gymnasts in Russia in an international environment.

For the first time, the reasons for the decrease in stability were substantiated as a result of research conducted by employees of the GDOIFC named after P.F. Lesgaft under the leadership of A.N. Krestovnikov, who confirmed that changes in information coming from the visual and auditory sensory systems affect the level of implementation of the motor program of a competitive exercise [3]. Consequently, it is advisable to look for a resource for increasing the stability of the competitive activity of female rhythmic gymnastics athletes in increasing proprioceptive sensitivity by developing the ability to coordinate muscle efforts, ensuring procedural accuracy in the supporting position, regardless of the information coming from telereceptors.

At the same time, among the means, methods and conditions of educational and training activities of gymnasts, difficulty or exclusion of visual control (an obvious reason for the occurrence of motor errors for practitioners), as well as difficulty or exclusion of auditory and proprioceptive control (as a cause of motor errors), are not widespread.

Based on the fact that at competitions in the sport «rhythmic gymnastics», judges evaluate the system of movements demonstrated by the gymnast, reflecting motor experience and the degree of mastery of elements, and the degree of mastery is the presence in the structures of the cerebral cortex of «motor programs» of elements and their connections, and as well as their number, it was decided to make changes and additions to the motor programs of the elements of competitive compositions, as prepared sets of basic commands and ready-made corrective subprograms that ensure the implementation of movement taking into account the current afferent signals coming from various parts of the central nervous system. For this purpose, a new format was used - gala concerts. The main idea of this format is to connect types of human culture through the integration of physical culture and various types of art into the event - temporary (dance, music, verbal art, poetry, cinema) and spatial (painting, graphics, sculpture, architecture, applied art, design). In accordance with the predominant genre of art used as a medium, the gala concerts were attended by members of the Russian rhythmic gymnastics team, athletes of the potential, immediate and current reserve, as well as representatives of dance sports, breaking, acrobatic rock and roll, acrobatics, aesthetic gymnastics and other sports, as well as stars of world opera, classical and pop music. This decision is based on the principle of complementarity (complementarity) as one of the most important methodological principles of science.

Rhythmic gymnastics is part of a group of sports for which all six forms of manifestation of coordination abilities are in demand and provide competitive activity. However, the leading form of manifestation of coordination abilities is the ability to coordinate muscle efforts in accordance with information coming from telereceptors and reproduced images of objects and phenomena [2].

Due to the various conditions formed by the specifics of the gala concert - unusual lighting and sound, different from those typical for educational, training and competitive events, athletes during rehearsals



and the actual performance at the gala concert had the opportunity to supplement the motor programs of the elements of competitive exercises with sensory corrections, providing construction, encryption and correction of movements of all limbs of the body relative to each other in the coordinate system of one's own body. This contributed to the targeted and preferential development of the ability to coordinate muscle efforts, ensuring procedural accuracy in the support position, regardless of the information coming from telereceptors. At the same time, the leading form of manifestation of coordination abilities remained the ability to coordinate muscle efforts in accordance with information coming from telereceptors and reproduced images of objects and phenomena, since gymnasts were required to accompany their performance with the music that sounded in the gala concert and reflect its semantic component.

To identify the degree of influence of the conditions formed by the specifics of the gala concert on the stability of the competitive activity of rhythmic gymnastics athletes, an analysis of the results of pedagogical observations of all-Russian level competitions for the period from 2021 to 2024 was carried out. The subject of observation was the implementation of motor programs of competitive exercises according to the following parameters: artistic value of the exercise; technical performance, difficulty of the subject; body difficulty. An analysis of the stability of the performances of leading gymnasts was also carried out. The trend is typical for the majority of athletes who took part in gala concerts during this period.

Conclusions. It has been established that the proposed format of gala concerts, which contributes to the addition of motor programs of elements of competitive exercises with sensory corrections that ensure the construction, coding and correction of movements of all limbs of the body relative to each other in the coordinate system of one's own body, has a positive effect on increasing the level of stability and performance skills of gymnasts, and compensates decrease in the intensity of competitive practice of gymnasts due to restrictions related to COVID-19 in 2020-2021. and the suspension of Russian gymnasts from participation in competitions under the auspices of the FIG from 2022.

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