Journal of Physical Education and Sport ® (JPES), Vol 19 (Supplement issue 2), Art 42, pp 281 - 286, 2019
online ISSN: 2247 - 806X; p-ISSN: 2247 – 8051; ISSN - L = 2247 - 8051 © JPES

Original Article

Technologies of selection, orientation and preparation of athletes in the group exercises of the rhythmic gymnastics

IRYNA SYVASH[1], MARIIA BALAZH[2], OLEKSANDR YURCHENKO[3], YAKIV SHCHERBASHYN[4], DMYTRO KHURTYK[5], VOLODYMYR KORMILTSEV[6], SVETLANA NESTEROVA[7] YURIY KYRYCHENKO[8], YULIA YAKUSHEVA[9]
[1,2,3,4,5,6,]National University of Physical Education and Sports of Ukraine, Kiev, UKRAINE
[7,8,9,]Vinnitsia State Mykhailo Kotsyubynskyi Pedagogical University, UKRAINE

Published online:Februry 28, 2019
(Accepted for publication January 20, 2019)
DOI:10.7752/jpes.2019.s2042

Abstract
The article is devoted to the actual problem of creating a technology for selection, orientation and preparation of athletes for group exercises in the rhythmic gymnastics at the stages of initial and preliminary basic sports preparation. It is determined by some factors to contribute to the selection and orientation of gymnasts for the group exercises at the stage of preliminary basic sports preparation, there are followed: level of health, anthropometric indices, level of physical preparedness, specialized perceptions, psychological and physiological indices, ability to master technical elements, competitive result, social indicators, setting and studying the group exercises without objects and with balls. The testing data is presented and confirmed by the dynamics of indicators for 20 tests in gymnasiums of the main and control groups. During the research, the technology of selection and orientation of gymnasts has been tested, allowed to qualitatively form the main composition of the gymnasts to the group exercises. During the period of the improvement of the technique of motor interactions in the competing compositions, multimedia tools of training were introduced, allowed, after 6 weeks of preparation for group exercises, to record the positive dynamics of the pedagogical testing of the techniques of rebounds and interactions.
Key words: rhythmic gymnastics, sports specialization, group exercises, selection, orientation, criteria, the system of assessment. .

Introduction

The analysis of author's research considers the features of competitive activities in complex coordination sports and the rhythmic gymnastics (A. Hökelmann, P. Blaser, S. Scholz, S. Plock, S. Viet, 2006; V. Boloban 2009; O. Khudoliy, 2012; N. Suchilin, 2012; O. Shynkaruk, I. Sywash, 2013) points out on the importance of reforming the system of training athletes in the rhythmic gymnastics for increasing the volume of classes of group orientation.

For example, it is known that the modern training of gymnasiums in the group exercises is not sufficiently focused on the formation of specialization in the initial stages of preparation and the creation of a holistic system for the preparation, selection and orientation process of gymnasts in the group exercises (O. Omeliyanchyk, Yu. Salyamin, E. Dobrovolskii, 2012; V. Sosina, V. Linishyn, 2013 etc.). Training process of the gymnasts for group exercises at initial stages in scientific literature is not considered; does not bring the current trends in the development of the sport, the amount of work required for the development of technically complex elements, there are no criteria for selection and orientation of training the gymnasts in this type of competition. The preparation process of the teams in group exercises is carried out within a few months before the start. Analysis of training programs in the rhythmic gymnastics in sports schools has shown that they completely lack guidance on the evaluation and control indicators for the development of training gymnasts focused on group exercises. Athletes that working according to the program of the Youth Sports School, where preparation and training of elements of the group exercises are not presented, which complicates their preparation for regular competitions.

Analysis of the approaches to the formation of specialization in the structure of multi-year training of athletes (I. Ruda, 2010; V. Sosina, V. Linishyn, 2013), and the peculiarities of the selection and orientation of training as a component of effective management at various stages of multi-year improvement (V.Boloban, 2009; O. Shynkaruk, 2013; R. Kropta, I. Hruzevych, 2018) allows to assert that the system of sports selection and orientation in the group exercises of rhythmic gymnastics, its elements in practice are not connected with the peculiarities of the preparation of gymnasts at various stages. It does not allow to timely search for prospective athletes, to determine their specialization bringing the individual characteristics and tasks of the training process.

Corresponding Author: IRYNA SYVASH, E-mail: uk_scientific@i.ua

These provisions point to the urgency and necessity of scientific substantiation of the technology of selection, orientation, and training of young athletes in the group exercises of the rhythmic gymnastics at the stages of initial and preliminary basic sports preparation.

Purpose of the research

The research is devoted to the substantiation of the technology of selection, orientation, and training of young athletes in the group exercises of the rhythmic gymnastics at the stages of initial and preliminary basic sports preparation.

Materials & Methods

Participants

The study was attended by 50 athletes of the Youth Sports School №1 in Kyiv, which are at the stages of the initial (20 people) and preliminary basic sports preparation (30 people), among them: 20 gymnasts were the 1st category of the athletes, 10 has the level the Candidate in Master of Sports.

Procedure//Measure/Instruments

A comparative pedagogical experiment was conducted in the groups of initial training of the second-third years of studying process and in the training groups (stage of preliminary basic sports preparation), in order to determine the effectiveness of the technology of selection and orientation of gymnasts and the program of preparation for the group exercises. During the experiment, two groups of girls of elementary education (second-third years of studying process) were formed for 10 persons in each. Control (CG) and main groups (MG), according to indicators of physical and technical preparedness for the experiment, did not significantly differ ($p<0,05$).

Classes in the CG were conducted according to the standard program of the Youth Sports School, and in the main one, it is performed according to the developed training program for the group exercises.

The author's program was based on the group method of teaching of the common motive elements of interaction and cooperation, the synchronous performance of choreographic elements necessary for work in the group exercises. The basis of conducting training sessions was laid a group organizational form of training, as the working in pairs, triples and quarters, as in the pairs of variable composition. Teaching children of the motor activity in the pairs, triples and quarters, in conjunction with the development of the technology of the elements performed individually, in our opinion, positively affects the expansion of the range of motor capabilities of the gymnasts, the development of motor skills, increases the technical preparedness.

To explain the formed tasks, visualization was used, as a visual presentation of the material, a review of elements, combinations, and interactions on the basis of video materials of the elements by the leading gymnasts of the school, which is facilitated the development of elements by the young gymnasiums. Such conducting of training sessions involves further group training from the initial stages to the stages of higher skill and implies the selection and orientation of promising athletes in the group exercises in the process of multi-year improvement. The complex of exercises for the preparation of gymnasts for the group exercises consisted of the following blocks:

- warm-up included preparatory exercises, there are followed: jogging, unobtrusive inclinations, turns and jumps that were performed in pairs or triplets. The task of this unit was the training of the locomotor apparatus of the gymnasts, the versatile development, the increase of work capacity;
- choreographic, musical and rhythmic preparation for the formation of musical and rhythmic coordination, achievement of accuracy and coherence of movements, synchronism, artistic and expressiveness, development of a unified style (as the performance of dance followed elements: jumping, dance steps);
- pointless and acrobatic training consisting from the followed elements: the improvement of specific forms of movements, support, motor interactions in pairs, in triads for the development of strength, dexterity, accuracy, coordination of interactions, the formation of common, synchronous and asynchronous skills during exercises with a partner;
- technical training with subjects consisting from the followed elements: teaching techniques of movements with subjects, mastering the same for all gymnasts of the group with the technique of basic elements with balls and hoops (as the training precision reversals, throws, catching, manipulation);
- a compositional preparation consisting from the followed elements: working out of competitive compositions, preservation of the correct distance in compositions, crossings, improvement of the technique of the performance of composition elements in relation to the accuracy of throwing interactions and stability of their execution.

Statistical analysis

The data obtained during the experiment were processed using descriptive statistics methods. We used the method of averages. Average values of the studied indicators were determined ($\bar{x}$) and a standard deviation (σ).The statistical processing of the materials of the research was performed using a software package Microsoft Excel 2010.

Results

At the intermediate stage of the experiment, we were performing the testing of gymnasts in 20 tests on a 10-point scale. The results of the gymnasts of the CG improved from 1,15 ± 0,16, ($\bar{x}$ ± S) to 1,56 ± 0,12 points, ($p<0,05$), in the MG the results improved from 2,10 ± 0,14 to 2,44 ± 0,12 points, ($p<0,05$). After testing, able gymnasts were focused on special exercises from the group exercises.

The formation process of the final evaluation was complex, bringing the informative criteria for selecting children in the group exercises at the initial stage of sports preparation on the developed assessment scales, there are followed criteria: 56-69 points are responsible to the high level, 49-55 are responsible to the level above average, 38-48 points are responsible to the average level, 31-37 points are responsible to the lower than average, 21-31 points are responsible to the low level of preparedness. Thus, the basic composition of the CG (n = 5) and MG (n = 5) was determined, the remaining athletes were included in the reserve composition.

At the next stage of the experiment, we have conducted the staging and studying group exercises without objects and balls. At the end of the experiment, the analysis of the testing results confirmed the growth of the scores for 20 tests in the gymnasts of both groups ($p<0,05$). The results of the testing of general physical and technical preparedness in the MG in the most indicators were significantly higher compared to the CG results.

The introduction of the proposed experimental training program for the group exercises allowed for the period of experiment in gymnasts of the MG to improve the following indicators: the stability of vestibular reactions increased in the average from 3,5 ± 0,35 to 8,2 ± 0,35 points, ($p <0,05$); the indices of the motor coordination increased from 3,94 ± 0,36 to 7,9 ± 0,7 points, ($p <0,05$); the work with subjects - where virtuosity has changed on average from 4,19 ± 0,06 to 8,0 ± 0,28 points, ($p <0,05$). During the same period, the results in the CG were followed: the stability of the vestibular reactions increased on average from 3,8 ± 0,27 to 6,0 ± 0,7 points, ($p <0,05$); the indices of the motor coordination increased from 4,02 ± 0,32 to 5,8 ± 0,91 points, ($p <0,05$); the virtuosity has changed on average from 3,97 ± 0,3 to 6,2 ± 0,66 points, ($p <0,05$) (Fig. 1).

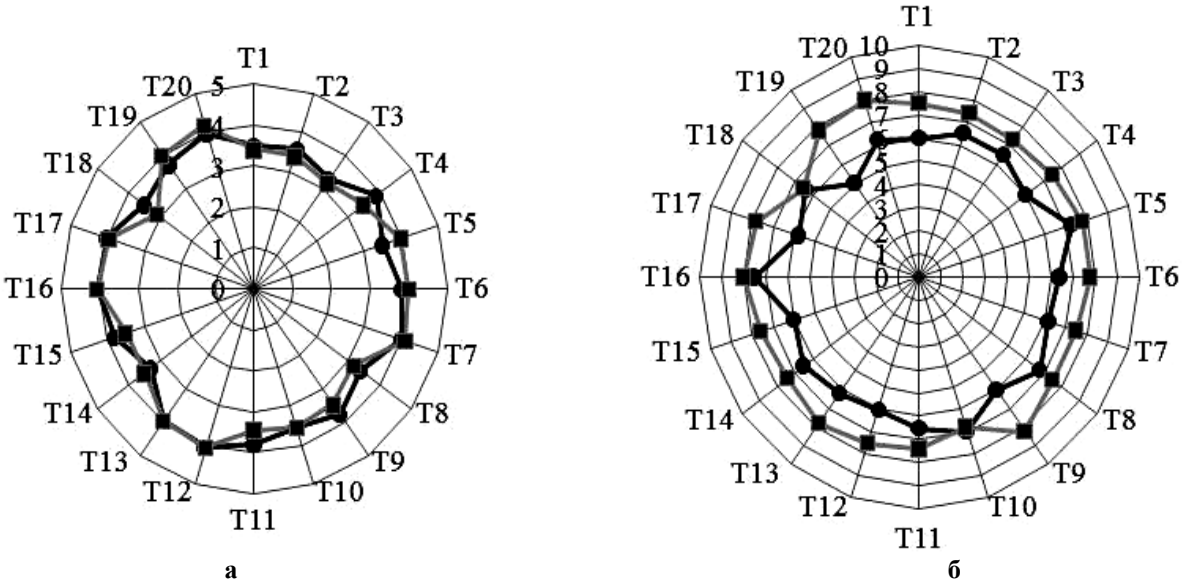

Fig. 1. Dynamics of changes in the overall physical and technical preparedness of the gymnasts of the control and main groups during the experiment, points:

T1, T2, T6 – flexibility and mobility of the joints; T3 – strength endurance; T4 – general endurance; T5, T7 – speed; T8 – speed and power abilities; T9 – stability of vestibular reactions; T10 – precision; T11 – dynamic equilibrium; T12 – static equilibrium; T13 – speed and motor reaction; T14 – the ability to orientate in space; T15 – the ability to restructure motor activity; T16 – blasting force; T17 – motor coordination; T18 – «object feeling»; T19 – «time feeling», «a sense of tempo and rhythm»; T20 – virtuosity;

— main group; — control group; а – at the beginning of the experiment; б – at the end of the experiment

In general, in the CG test scores increased from 3,35 ± 0,18 to 7,35 ± 0,11 points, ($p<0,05$), and in the MG the same indicators increased from 3,20 ± 0,14 to 8,20 ± 0,12 points, ($p<0,05$). Also, at this stage of the experiment in the gymnasts of the main composition of the MG equalized indicators of technical preparedness (V = 8,35 %), that is is one of the important indicators of the development of joint interactions. In the CG assessment of the technique of compliance with the technical preparedness also increased, but the difference in the results is quite high (V = 16,91 %).

Confirmation of the effectiveness of the technology of selection and orientation of gymnasts by the developed training program, the indicators of physical fitness and the competitive results of teams began to increase in the program group exercises without objects and with balls. During the competition for the

championship of the school for the 3rd youth division, the team of the main staff of the MG performed a competitive program with the minimum number of errors and took first place and the team of the main team of CG taking the fifth place. This suggests the need for forming specialization as the "group exercises" at the end of the initial stage of multi-year improvement.

Purposeful preparation of a remote reserve and the formation of specialization in the group exercises continues at the stage of preliminary basic training. Improvement of physical abilities and the formation of joint motor skills (interactions and cooperation) are of great importance for successful specialization in group exercises. A growth of indicators of physical and technical preparedness allows assessing the possibility of achieving high skill in specific types of competitions.

Markers of the selection and orientation of gymnasts for the group exercises at the stage of preliminary basic sports preparation, according to the opinion of respondent trainers, are followed in order of importance: health condition, anthropometric indices, level of physical preparedness, specialized perceptions, psychophysiological indicators, ability to master technical elements, competitive result , social indicators (n = 46; $W = 0,70$). Also, significant components of the preparedness of gymnasts to the group exercises at this stage of training were assigned: coordination ability, choreographic preparedness, speed and endurance, agility and virtuosity and flexibility (n = 46, $W = 0,68$).

To substantiate the indicators during the experiment in the groups of the previous basic training, the age of gymnasts (9-13 y.o, 10 people in each), twice per year were determined: health condition, anthropometric indicators, physical qualities; assessment of specialized perception; ability to master the technology; choreographic preparedness; psychophysiological indicators.

During the preparation of gymnasts for the group exercises according to the norms of the 1st sports degree, the technology of selection and orientation of gymnasts was tested, it allowed to form the basic composition of gymnasts qualitatively to the group exercises. During the period of the improvement of the technique of motor interactions in the competing compositions, multimedia tools of training were introduced, it allowed to record the positive dynamics of the pedagogical testing of the techniques of rebounds and interactions after 6 weeks of preparation for the group exercises.

During the three academic years, gymnasts in groups corresponding to the stage of previous basic sports preparation showed significantly better results by the all indicators ($p < 0,05$), which is the basis for confirming the effectiveness of the proposed approach.

Discussion

As a result of the study, the synthesis of experimental data and theoretical analysis allowed to solve an important scientific and practical problem, introduced the technologies of selection, orientation and preparation of the gymnasts, which can help to find an able athletes that meet the requirements of a certain stage of training and improve the effectiveness of the trainer.

We were obtained evidence of global trends in the development of group exercises as an Olympic discipline and the increasing complexity of competitive programs (T. Nesterova, 2009), features of competitive activity, which are accompanied by high substantive preparedness with performing skills of the gymnasts (N. Suchilin, 2012; O. Zhyrnov, V. Bohuslavska, I. Hruzevych, 2017) confirm that the procedure for testing of the athletes-beginners should be as simple and accessible as possible, using standard tests to determine the level of general physical fitness of children (O. Omeliyanchyk, Yu. Salyamin, E. Dobrovolskii, 2012). After the conducting preliminary basics sports preparation stage of the gymnastics school for more accurate identification of the child's perspective and assessment of their abilities, tests can be recommended reflecting the abilities characteristic of the rhythmic gymnastics. Conducted comparative pedagogical experiment confirmed the validity of the data of the surveying of specialists on the preparation of gymnasts in the group exercises.

The materials of the presented research supplement and expand the scientific data on the criteria for the selection of gymnasiums at the initial stage (T. Miroshnichenko, 2004; O. Shynkaruk, I. Sywash, 2013) and application of standard and special tests during the selection process (O. Khudolii, 2012). The results of the study complement the authors' conclusions (T. Nesterova, I. Sywash, 2012; N. Suchilin, 2012) about the success of performances of gymnasts in the group exercises depends on the uniform technical preparation of the entire team.

There are new followed data:

- the justification of the approach to the formation of the specialization of young gymnasiums in the group exercises, which is based on the laws of age development and the age of the beginning of specialization, the natural causes and characteristics of athletes to perform the group exercises, selection and orientation of training gymnasts in the group exercises, tools and methods of sports training;
- the technology of selection and orientation of training gymnasts in the group exercises, the components of which is the purpose and content of the process of selection and orientation process of athletes in the group exercises for each stage of long-term training; criteria, indicators and scales; training program in group exercises in the stages of initial and preliminary basic sports preparation;

- the systematization of criteria for the selection of athletes are followed: morphological, sports and pedagogical (as the technical, physical), functional, psychophysiological, as well as requirements for young gymnasts focused on the specialization of the "group exercises";

- the program of preparation of gymnasts in the group exercises of the rhythmic gymnastics for the stages of initial and preliminary basic sports preparation includes the formation of skills of joint motor interactions, interactive training for elementary and basic exercises, the corresponding age and special technical preparedness;

- the system of organizational measures for the search of promising athletes for training in the group exercises of the rhythmic gymnastics and assessment of motor and technical capabilities of gymnasts at various stages of sports improvement.

The data obtained as a result of the research, allow coaches to rationally and effectively build a learning process aimed at achieving a sporting result.

Conclusions

For the training of joint motor actions in the group exercises, achieving consistency, clarity, fidelity, stability of performance, synchronization and asynchrony in the work of gymnasts, a program of preparation for the group exercises has been developed that was introduced after the training of the main elements of the basic school preparation of the rhythmic gymnastics, and includes followed blocks: preparatory exercises (warm-up), choreographic and musical and rhythmic training unit, block of non-objective and acrobatic training, block of technical preparation with subjects, block on the composition preparation.

The group method of teaching (as the working in the pairs, triples and quarters) was adopted on the basis of common motive elements of interaction and cooperation, the synchronous performance of choreographic elements necessary for work in the group exercises.

The results of the conducted experiment indicate the effectiveness of the proposed approach to the formation of specialization the "group exercises", starting with the third year of study. Indicators of testing gymnasts who participated in the experiment at the initial training stage, for 20 tests (as the determination of flexibility and mobility of joints, strength and overall endurance, speed, speed and strength abilities, stability of vestibular reactions, accuracy, dynamic and static equilibrium, motor reaction; the ability to orientate in space, to reorganize motor activity, explosive force, motor coordination, "feeling of the subject", "feeling of time, tempo and rhythm", virtuosity) when evaluated on a 10-point scale improved. In the CG, test scores improved on average from $3,35 \pm 0,17$ points to $7,35 \pm 0,11$ points, ($p < 0,05$) and MG indicators improved from $3,20 \pm 0,14$ points to $8,20 \pm 0,12$ points, ($p < 0,05$). The introduction of the proposed experimental training program for the group exercises allowed to improve the followed indicators in the MG during the period of experiment: stability of vestibular reactions on average from $3,5 \pm 0,35$ points to $8,2 \pm 0,35$ points, ($p < 0,05$); motor coordination from $3,94 \pm 0,36$ points to $7,9 \pm 0,7$ points, ($p<0,05$). There were improved the performance of gymnasts with subjects: the virtuosity indicator has changed on average from $4,19 \pm 0,06$ points to $8,0 \pm 0,28$ points, ($p < 0,05$). During the same period in the CG the results were followed: resistance of vestibular reactions on average changed from $3,8 \pm 0,27$ points to $6,0 \pm 0,7$ points, ($p < 0,05$); motor coordination from $4,02 \pm 0,32$ points to $5,8 \pm 0,91$ points, ($p < 0,05$); virtuosity on average changed from $3,97 \pm 0,3$ to $6,2 \pm 0,66$ points, ($p < 0,05$). Indicators of the CG, although improved, but compared to the MG, the difference was up to two points.

At the stage of preliminary basic sports preparation, in gymnasiums for 9 years the average group indicators of the growth of ability to spatio-temporal actions in 2 years were: from 0.15 to 0.20 points; in gymnasts of 10-11 years - from 0,98 to 1,17 points; and gymnasts 12-13 years - from 2.17 to 2.37 points. The obtained data indicate that motor skills are formed unevenly according to age. The growth of pedagogical indicators for the last two academic years by indicators of coordination abilities, development of motor qualities, level of development of jumping, endurance, agility, and flexibility was observed in all age groups.

The prospect of further research is the justification of the approach to in-depth specialization, the development of a system of selection, orientation, and training of gymnasts in the group exercises in the stages of specialized basic sports preparation and their preparation process for the higher achievements.

Conflicts of interest – If the authors have any conflicts of interest to declare.

References

Boloban V. (2009). Elements of the theory and practice of sports orientation, selection and recruitment of groups in sports acrobatics. *Pedagogics, psychology, medical-biological problems of physical training and sports.* 2, 170-178.

Kropta R., Hruzevych I. (2018). Scientific and methodological principles of the study of the functional preparedness of athletes specializing in sports that require a high level of endurance. *Theoretical and methodological bases of management of the process of preparation of athletes of different qualifications.* 299-316. http://93.183.203.244:80/xmlui/handle/123456789/3610

Miroshnichenko T. (2004). Modern tendencies of constructing competitive compositions of group exercises in artistic gymnastics. *Theory and methods of physical education and sport.* 1, 72-74.

Nesterova T., Syvash I. (2009). Current state and prospects of improving the technique of motor interactions in group exercises of rhythmic gymnastics through the use of multimedia technologies. *Physical education of students of creative specialties.* 3, 79-83.

Omeliyanchyk O., Salyamin Yu., Dobrovolskii E. (2012). Comparative analysis of the competitive activities of Ukrainian gymnasts in the Olympic cycle 2009-2012. *Science in Olympic Sports.* 1, 81-84.

Shynkaruk O., Sywash I. (2013). Technology of selection and orientation of gymnasts in group exercises of rhythmic gymnastics. *Young sports science of Ukraine*. 17(1), 295-302.

Suchilin N. (2012). Technical structure of gymnastic exercises. *Science in Olympic Sports.* 1, 90-93.

Zhyrnov O., Bohuslavska V., Hruzevych I., Galan Ya., Moseychuk Yu., Pityn M. (2017). Modelling the kinematic structure of movements of qualified canoeists. *Journal of Physical Education and Sport.* 17(4), 2544 – 2552. DOI:10.7752/jpes.2017.03199.

Ruda I. (2010). Characteristics of manifestations of flexibility in the representatives of high-end gymnastics. *Modern problems of the development of the theory and method of gymnastics.* 11, 267-272.

Hökelmann A., Blaser P., Scholz S., Plock S., Viet S. (2006). Quantitative and Qualitative Analysis of World Standing in Group Competition in the Sport of Rhythmic Gymnastics. *International Journal of Performance Analysis in Sport*. 6 (2), 82-87.