

## **SURVEY OF THE DIFFICULTY-COMPOSITION RELATION WITH THE ENSEMBLES IN RHYTHMIC GYMNASTICS**

*Preliminary communication*

**Giurka Gantcheva**

*National Sports Academy "Vassil Levski", Gymnastic Department, Sofia, Bulgaria*

### **Abstract**

*The structure of the competitive routines is an important part of the preparation in the gymnastics events. In order to survey the composition structure of the ensemble routines, we analyzed the routines of three teams, which have won a quota for the Olympics-2016, regarding the number of the difficult exercises, the artistic part of the routines, and a comparison of the starting and obtained score in competition. Analytical-synthetic method was used. The visual analysis of the routines gives an idea of the artistic side of the compositions, of spectacle and attractiveness of the competitive routines, in relation with the strong sides and traditions of the particular gymnastics school. The obtained score is within the range of 86-95% and is an important component in the final ranking. The results from the present study could be used as a point of reference in the teams' determining their strategy for creating competitive routines.*

**Keywords:** *competitive routines, gymnastics events, Analytical-synthetic method, gymnastics school, Pedagogical observations, gymnastics apparatuses, gymnastics exercises, physical endurance of the competitors*

### **INTRODUCTION**

At the 2016 Olympics the rhythmic gymnastics ensemble routines will be in the official program for the sixth time (FIG. (Federation Internationale de Gymnastique) 2013). The ensemble competitions are attractive due to the participation of a greater number of gymnasts (Karpenko (Карпенко), 2003; Lisitzkaia (Лисицкая)1982).

According to Gantcheva (Ганчева), the strategies of the different schools are shown in the selection of the exercises and the structure of the competitive routines (Dimitrova (Димитрова) (2015).

The determination of the difficulty of the routines, regarding their technical and composition characteristics, enables us to analyze part of the teams' strategies, as well as the distribution of power at the last stage of the Olympic cycle (Shishkovska (Шишковска), 2001).

We decided to do the present survey and set its purpose in order to examine the trends and current state of this issue.

### **METHODS**

The aim of the survey is the composition structure of ensemble routines in rhythmic gymnastics.

Tasks:

1. To trace the composition of the difficult exercises in the competitive routines of the leading world teams.
2. To determine the specifics of the different compositions in the artistic part of the routines.
3. To compare the starting and the obtained points awarded for difficulty of the competitive routines.

Objectives of the research are:

The competitive routines of Russia, Italy, and Bulgaria:

- Routine with three sets of clubs and two hoops,
- Routine with five ribbons

Subject of the research:

The difficult exercises in the routines, their value and distribution within the routine.

Organization of the research:

The research was done in two stages:

I stage – September 2015 – video observation of the routines at the World Championship in Stuttgart, 2015.

II stage – November 2015 – taking data from the official competitive forms of the teams (a compulsory form justified by FIG) of the observed routines.

Methods of the research:

1. Survey, analysis, and summarizing the literature sources.
2. Pedagogical observations, video-analysis of the routines, and taking data from the official competitive forms of the teams.
3. Mathematics-statistical methods for processing the information.
4. Analytical-synthetic method.

### **RESULTS AND DISCUSSION**

The competitors in the group event in rhythmic gymnastics perform two compositions, determined by FIG. The analysis of the results is based on:

- the number of the exercises included,
- the points awarded for the technical difficulty of the exercises,
- the tracing the dynamics of the difficulty of a composition.

The observed ensemble routines were created according to the technical requirements of FIG. They are characterized with their own specifics and correspond to the desire of the Technical Committee to introduce in the competitive program a wider variety through the use of different apparatuses. For the First Routine (3 sets of clubs and 2 hoops)

two “hard” apparatuses were used, which do not change their shape, and the clubs are the only apparatus in rhythmic gymnastics which consists of two parts. The opportunities which are given from the combination of apparatuses in the interaction among the gymnasts and in the exchange of apparatuses are innumerable. A specific moment in the Second Routine is the nature of the apparatus ribbon – it consists of one part, which changes its shape, but is set into motion by the hard part (grip), which does not change its shape but is in the base of the movement of the whole apparatus. The use of five identical apparatuses conveys beauty because of the synchronization of the different movements and due to the technical necessity the apparatuses to be on the constant move because of the nature of the apparatus.

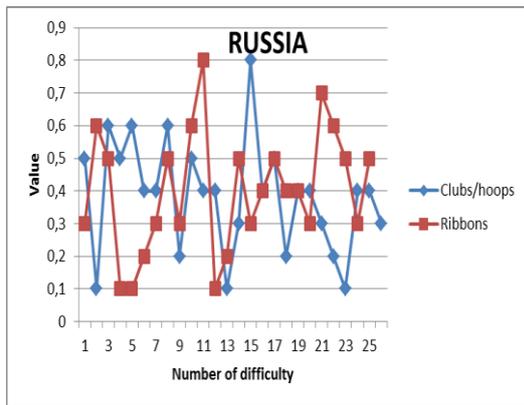


Fig. 1 Difficulty of routines

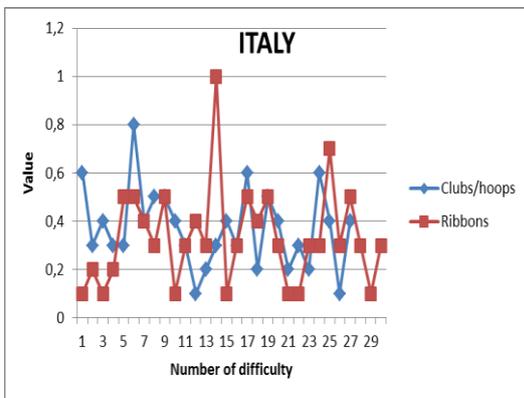


Fig. 2 Difficulty of routines

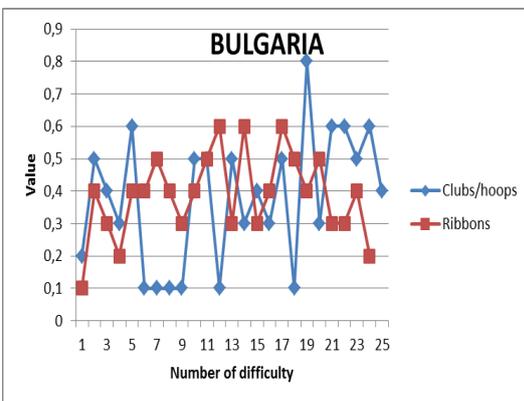


Fig. 3 Difficulty of routines

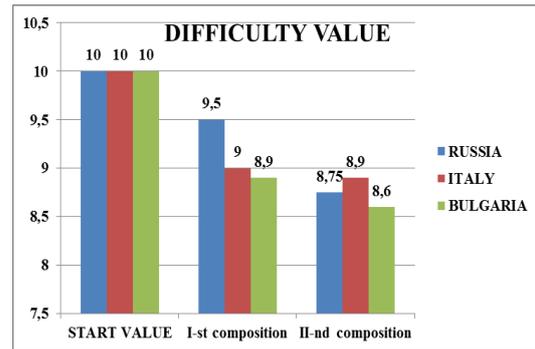


Fig.4 Starting score and realized score

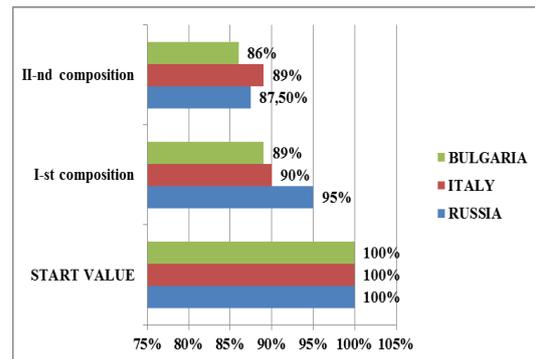


Fig. 5 Percentage of the realized score for technical difficulty of the routines

Ensemble Russia:

The team holds three Olympic titles and does not hide its ambitions for the future. It may turn out it is a major factor in the development of the event with new ideas, creative search in technical and artistic respect. As regards difficulty, it can be observed (fig. 1) that a relatively great number of exercises have been included – 26 in the first routine, and 25 in the second routine.

There are exercises of high value in both routines – clubs and hoop – 0.8 points, and the routine with five ribbons includes an exercise valued at 0.7 points. The total difficulty of the exercises in both routines varies below the average difficulty level – 0.3-0.4 points. The strategy when arranging the exercises is aimed at performing spectacular and impressive exercises, typical for the ensemble play, nonstandard exercises with the apparatuses, collaborations among the gymnasts and supports taken from ballet. The arrangement of the exercises in the two routines is different, but a major similarity can be outlined, namely, the step-like decrease of the difficulty in a set of exercises, performed at the end of both routines. There could be two reasons for this:

- ✓ The end of the routine should consist of lighter exercises in order to emphasize on the spectacularity,
- ✓ Pure mathematical forming of the starting point for difficulty.

Ensemble Italy:

Fig. 2 shows the graph of the exercises according to their succession and technical value of one of the leaders with ensemble routines – the team of Italy. The total number of exercises is 26 and 30. Interestingly, some exercises valued at 0.1-1.0 points have been included. The highest difficulty of a single exercise is 1.0 points, and its position is in the middle of the routine with ribbons, and it is the

most difficult exercise in the surveyed compositions. The same routine includes another exercise with high value – 0.7 points. It is curious that all the other difficulties (28) range between 0.1 and 0.5 points. The average value of the difficult exercises is about 0.35 points for both routines. There are four difficult exercises in the routine with clubs and hoops, but of higher value – 0.8 points and three exercises of 0.6 points.

The execution of a limited number of impressive and difficult exercises and a number of lighter exercises illustrate the chosen strategy for the composition of the routines. The arrangement of the exercises in relation to the apparatus is subjected to the common logic of the competitive rules, while at the same time reflects the idea of prevention from possible technical mistakes. The compositions of this team impress with interesting, dynamic, and sizable movements and change of figures. The team won the world title with one of its routines and is one of the serious contenders for the Olympic medals. The visual spectacular effect is sought in the synchronization of the performance of the gymnasts, in the emphasis on the links between the exercises and the combinations.

#### Ensemble Bulgaria:

The team of Bulgaria is one of our hopes for good performance at the Olympics. There are 24-25 exercises of average value 0.4 points included in the routines (fig. 3) and it is the highest in comparison with the routines of their rivals.

The difficulty, compared with that of the rival teams, yields along the index included exercises of high value. In the routine with clubs and hoops – one exercise with 0.8 points and four exercises with 0.6 points, and in the routine with ribbons – three exercises with 0.6 points. These difficult exercises, executed almost consecutively in the middle of the routine, have no analogue in the comparison with the other teams. A positive moment in the dynamics of difficulty of one of the routines is the five peaks of difficulty. The use of a smaller number of exercises, in comparison with the rivals, leads to a counter proportional relation to their difficulty and respectively to their technical value.

The specific dynamics when alternating difficult collaborations among the gymnasts with sizable exchange of apparatuses should be noted. The spectacular effect of the compositions is achieved through performing dance steps on the musical accompaniment while emphasizing on the dancing skills of the contestants and the identity of the Bulgarian gymnastics school.

The analysis of the difficulty of the different routines shows that the researched teams use different strategies for creating their routines. Despite the fact that to a great extent the structure of the routines is determined by the requirements of the Code of Rules, the routines are characterized with their own style while showing the technical possibilities and physical endurance of the competitors.

It is extremely important for the final ranking the routines to be performed accurately and with no mistakes. Fig. 4 shows that all the surveyed routines of the teams have a starting score 10. Since the judges' score is formed by taking away points for inaccurate execution of exercises from

the starting score, an important moment in the distribution of places in the competition is the part of the starting score which will be realized.

The percentage of the realized score for technical difficulty of the routines is shown on fig. 5. There can be seen an extremely small difference in the teams' final scores – 0.6 points (6%) with the first composition, and 0.3 points (3%) with the second one. Paying more attention to the difficulty score in the present analysis, we should point out we do not underestimate the other components of the final judges' score (execution score), but the results show that with both routines it is the team which has managed to execute a bigger part of the included exercises without any mistakes that is the winner. The extremely small differences show that the rivalry is big, the teams' preparation on all its stages is on a very high level, and the struggle for the medals will be close.

#### CONCLUSION

1. The results from the survey of the difficulty level in the competitive routines of the ensembles showed that the teams have the same indexes for:

- number of difficult exercises,
- mean value of the exercises,

2. The visual analysis of the routines shows the artistic side of the compositions. The teams' strategies as regards spectacularity and attractiveness of the competitive routines are presented in relation to the strong sides and the traditions of the particular gymnastics school.

3. The percentage of the obtained score during the competitive performance ranges within 86-95% and is proportional to the place in the final ranking at the finals of the apparatus.

4. The starting possibilities of the teams, technical and compositional, are the same and the psychic stability of the ensembles is the only factor which will play a crucial role in the distribution of the medals.

5. The tactics of the different gymnastic schools, expressed in the composition of the routines, lies in the base of the preparation of the teams, which have won a quota for participation in the Olympics-2016.

#### REFERENCES

- Ганчева, Г. (2013) *Специфични упражнения в художествената гимнастика – равновесия, въртения, гъвкавости* [Specific exercises in rhythmic gymnastics – balance, bends, flexibility. In Bulgarian.] София: НСА ПРЕС.
- Dimitrova, B. (2015). *System for preparation and optimization of the training in artistic gymnastics (women)*. Sofia: Bolid inc.
- Карпенко, Л.А. (2003). *Художественная гимнастика* [Rhythmic Gymnastics. In Russian.] Москва: СПГАФК „П. Ф. Лесгафт“.
- Лисицкая, Т. (1982). *Художественная гимнастика*. [Rhythmic Gymnastics. In Russian.] Москва: Физкультура и спорт.
- Шишкова, М. (2001). *Оценка компонентов исполнительского мастерства ритмическая гимнастика* [Evaluation of the components of the performer's mastership in rhythmic gymnastics. In Russian.] (Unpublished doctoral Author's summary, Saint Petersburg University) Санкт-Петербург: Санкт-Петербургский государственный университет.
- FIG. (2013). *Code of points for RG*. Federation Internationale de Gymnastique.

Correspondence:

Giurka Gantcheva  
National Sports Academy "Vassil Levski"  
Gymnastic Department  
Studentski grad, 1700 Sofia, Bulgaria  
E-mail: giurka@abv.bg