



# Justification of the need to take into account the individual characteristics of synchronized swimmers when compiling a solo program

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## Abstract

**Objective of the study** was to substantiate the need to take into account the constitutional characteristics of female athletes when compiling solo programs in synchronized swimming.

**Methods and structure of the study.** The analysis of arbitrary solo programs of athletes from different countries in the finals of the World Championships in Gwangju, the Republic of Korea, representatives of the countries of Russia, Spain and Japan was carried out in order to identify the constitutional features of athletes when compiling solo programs in synchronized swimming.

**Results and conclusions.** A visual analysis of the competitive activity and individual characteristics of synchronized swimmers from different countries revealed that in the process of compiling a solo program, the constitutional and individual characteristics of synchronized swimmers are taken into account in order to create effective compositions. Athletes whose programs are distinguished by a modern and high level have similar constitutional characteristics, which include: asthenic or normosthenic body type, long limbs, height, within 165-175 cm, good joint mobility and plasticity of the feet, wide shoulder girdle. These sportswomen have well-developed special endurance, speed-strength qualities and coordination abilities.

**Keywords:** *synchronized swimming, competitions, solo, constitutional features.*

**Introduction.** In synchronized swimming, as in other sports, the main goal of the training process is competitive activity. Athletes, starting from a young age, have been preparing for competitions for many years, improving their physical qualities and abilities, honing their technical and performing skills, studying new elements and figures, movements and rebuilding of synchronized swimming. At the same time, the solo program involves not only unique elements of the composition, but also taking into account the individual, constitutional characteristics of the athletes.

**Objective of the study** was to substantiate the need to take into account the constitutional characteristics of female athletes when compiling solo programs in synchronized swimming.

**Methods and structure of the study.** Any free program is based on complex coordination "water plasticity", which includes stylized swims and movements on the surface of the water in the horizontal plane, combinations of movements in the vertical plane, cascades of movements, specific pushing out of the water, jumping out and much more. At the heart of any of the programs is musical accompaniment [1].

Since each athlete belongs to a certain morphotype, one should pay attention to her total dimensions, weight-to-height ratios, limb length, leg configuration and foot features, muscle volume and structure, and general body characteristics. It is also important to rely on the morphological and psychological characteristics of an athlete, her emotional characteristics, age and skill when drawing up a program [2].



For example, arbitrary solo performances in the finals of the World Championships in Gwangju, the Republic of Korea among athletes, representatives of the countries of Russia, Spain and Japan are considered. Athletes are highly qualified synchronized swimmers and personify the model characteristics of constitutional development in this sport.

Results of the study and their discussion. A visual analysis of the morphological characteristics of the soloist from Japan indicates that the athlete has a normosthenic body type, long limbs, plastic feet (but less plastic than those of the representatives of Spain and Russia), good joint mobility. The athlete has rather wide, muscular shoulders. The height of the athlete is 169 centimeters.

Her program was dominated by interesting elements performed both with hands above the water and with the help of legs. The combinations of elements were performed at a high level of performance with high complexity: there were rotations around their own axis, and sharp, clear movements, and a good height in movements. The athlete performed excellent push-outs from the water throughout the program, which indicates her well-developed speed-strength capabilities. The jumps were also quite high, but lower than those of the Spanish athlete. In the final part of her program, fatigue or lethargy in the movements of the athlete was not noticeable, the level of performance remained quite good.

In this regard, it can be noted that the performance of the Japanese athlete and the complexity of her program were of a high level. In our opinion, one of the advantages of her program was high pushes out of the water during combinations, where high efforts and good development of speed-strength abilities and maximum strength are required.

Further, the analysis of the program of the sports-woman from Spain follows. Visually, she has a normosthenic body type with long limbs, a pronounced wide shoulder girdle with well-developed muscles, good joint mobility, and plasticity of the feet. The height of the athlete is 174 cm. The Spaniard's program included very beautiful and graceful swims in the pool, during which she demonstrated her excellent artistry, emotionally revealing the "plot" of her program. She was originally engaged in rhythmic gymnastics, after which she began to engage in synchronized swimming.

But, in our opinion, it was this experience that allowed her to achieve excellent results in developing

the flexibility of all joints and improving the plasticity of her feet, thanks to which her long legs with aesthetic feet look beautiful when performing solo. The Spaniard had an interesting staging of the program, a variety of bewitching elements and figures, which she performed sharply, high and easily. The complexity of the program is quite high and, despite this, she carried out her program to the very end, without losing the pace of performance and without visible signs of fatigue. She also had high push-ups and jumps out of the water. In our opinion, the advantages of this athlete may be her constitutional data of the legs, thanks to rhythmic gymnastics in childhood, which allowed her to achieve aesthetic satisfaction from watching her performances, and there may also be a smooth execution of all movements, due to which they look organic, not interrupted. You can also note well-developed strength abilities, on which the level of performance of an athlete depends, i.e. height of holding, ejection and other things.

And the third athlete whose program we are analyzing is the Russian synchronized swimmer. Despite the age of the athlete, her functional capabilities and reserves are highly developed. Visually, she has a normosthenic body type with pronounced muscles of the shoulders and arms, a wide shoulder girdle. She is distinguished by good plasticity of the feet, long limbs, which help her to get out of the water so high during the performance. Also, she has well-developed joint mobility and flexibility. The height of the athlete is 173 cm.

Watching the performance of a Russian woman testifies to her high professional level. She has a very complex program in which the athlete performs everything at a high level, shows elegant choreography, reveals the plot of her program, performs movements as sharply and clearly as possible, and complex elements are performed not only in different planes with a large number of rotations around her own axis, but also in static hold at maximum height even at the end of the program. The Russian woman swims a large area of the pool for her performance, which is also appreciated by judges and spectators, because it adds "voluminousness" to the composition. In the final part of the program, visible signs of fatigue, that is, a decrease in performance technique.

After analyzing the performance of the Russian woman, we can say that she has all the qualities necessary for this sport, she has well-developed strength (to maintain height), speed-strength abilities (power-



ful pushing and sharp movements), special endurance (performing specific activities for a long time without visible signs of fatigue and loss of altitude). The athlete keeps the height in the elements of the ligaments higher than all the athletes, this is especially evident in the static holding of positions, where even more effort is required to maintain a given height. The difference in marks for the performances of the Russian woman and the Spaniard, who took 2nd place, was 2 points, which is a significant gap [3].

After analyzing the individual and constitutional characteristics of these athletes, demonstrating the modern model characteristics of the "ideal" synchronized swimmers, for comparison in the level of preparedness, we analyzed the data of an athlete from China, who also participated in the World Championships, but took 32nd place in the preliminary performances.

The Chinese women at that time were only 15 years old, when the athletes from Russia, Japan and Spain were already 28-29 years old. When visually analyzing the morphological characteristics, it can be noted that the athlete has an asthenic body type, relatively long limbs (legs), not very plastic feet, and average joint mobility. Her program was dominated by elements performed with hands above the water (performance level is good) and combinations (performance level is above average). Particularly complex elements were not observed. There were moments of "rest" in swimming on the back. In the final part of the program, fatigue and lethargy in the movements of the athlete are noticeable. Artistry is presented at an average level. The performance and complexity of the program of the athlete are at a low level. She lacks complex, di-

verse elements that would increase the complexity of her program, the development of strength abilities, special endurance, coordination abilities, as well as artistry. Perhaps, when preparing for the competition, the individual characteristics and level of preparedness of the athlete are not fully taken into account.

**Conclusions.** Thus, the analysis of the competitive activity of synchronized swimmers from different countries revealed that when preparing athletes for competitions, it is necessary to take into account their individual constitutional features when compiling a solo program: long limbs, height, joint mobility and plasticity of the feet. It is important to pay attention to the high level of special endurance, speed-strength qualities and coordination of movements.

### References

1. Maksimova M.N. Teoriya i metodika sinkhronnogo plavaniya [Theory and methodology of synchronized swimming]. textbook. 2nd ed., rev., sup. Moscow: Sport publ., 2017. 304 p.: ill.
2. Osobennosti kompozitsionnogo postroyeniya programm v sinkhronnom plavanii [Features of the compositional construction of programs in synchronized]. Available at: [swimming//https://bstudy.net/866395/sport/osobennosti\\_kompozitsionnogo\\_postroyeniya\\_programm\\_sinhronnom\\_plavanii](https://bstudy.net/866395/sport/osobennosti_kompozitsionnogo_postroyeniya_programm_sinhronnom_plavanii) (date of access: 11.18.2022)
3. <https://www.omegatiming.com/File/000113060002670401FFFFFFFFFFFF02.pdf> // 18th FINA World Championships 2019 Gwangju (KOR) 12 - 28 July 2019 Solo Free results (date of access: 03.25.2023)