

## Original Article

### Psycho-pedagogical aspects of interaction between personality traits and physical qualities of the young gymnasts of the variety and circus studio

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#### Abstract

The success in sports activities is determined by taking into account the individual characteristics of young athletes in conjunction with the development of certain physical qualities and with the improvement of technology. *Aim:* the identification of the relationship between the properties of the person and the physical qualities of young gymnasts. *Materials and methods:* the investigation continued during the years 2016-2018 and was conducted among young girls gymnasts of the variety and circus studio "Jin Roh" of Kherson between 10 and 12 years old inclusive. The methods of observation and of mathematical statistics were used, the levels of development of physical abilities and moral-volitional qualities of young gymnasts were estimated. *Results:* according to the results of the study it was found that the concentration of attention, moral and will characteristics are inextricably linked, both with the development of physical qualities, and with the success of sports-competitive activities. By the Pearson correlation coefficient a quite significant association was found between the physical qualities and motivation ( $r = 0,69$ ). And between physical abilities and the properties of attention and the will of young gymnasts  $r = 0,55$  and  $0,53$ , in accordance. *Conclusions:* it was found that the girls who were the first on the rating of development of special physical abilities had high indicators of motivational and volitional characteristics, high concentration of attention and did not need a strong need for approval; and vice versa - girls with weak indicators of physical fitness had distracted attention and low motivational and volitional individual properties.

**Keywords:** flexibility, motivation, will, emotions, attention.

#### Introduction

Sports training involves a multi-year process of improving the athlete in the chosen kind of sport (Platonov, 2019; Bakayev, Bolotin, & Chunguang You, 2018; Zhanneta K., Irina S., Tatyana B., Olena R., Olena L., & Anna I., 2015). During the long-term process, the formation and improvement of the necessary skills and abilities in conjunction with the development of physical qualities and the upbringing of the volitional and moral qualities of young athletes is ensured. (Churganov, Gavrilova, & Yakovlev, 2018; Bolotin, & Bakayev, 2017; Huzar, & Havrylchenko, 2001).

Gymnastics as a sport, by the nature of motor activity refers to the complex coordination and requires athletes manifestation of a wide range of motor skills and qualities. The modern stage of the development of gymnastics is characterized by a high level of sports and technical achievements, which determine the increased requirements for technical training of gymnasts.

Physical training makes certain requirements to an athlete, depending on the type of sport, athlete qualifications, development of certain physical qualities and technical actions. This leads to certain differences in the methodology of teaching a particular sport. Physical training in gymnastics solves problems of development and maintenance of high level of motor qualities - flexibility, coordination abilities, speed, strength, speed-power qualities, their combined improvement with the technique of exercises and the ability to manifest these physical qualities in conditions of competitive activity activities (Ivashchenko, Khudolii, Iermakov, Bartik, & Prykhodko, 2018; Ivashchenko, Khudolii, Iermakov, Veremeenko, & Lopatiev, 2018; Huzar, Shalar, & Savchenko-Marushchak, 2016). The highest rates of volume and intensity of physical training exercises are observed in the development phase. In the same phase, the training program should be renewed more frequently to prevent the development of power and speed barriers (Nosko, Razumeyko, Iermakov, & Yermakova, 2016; Volkov, 2002; Huzar, 2001).

Achievement in sports is possible only with the proper account of the individual characteristics of the individual athlete and the formation on this basis of specific technical and tactical style of his activities. The personality of the young athlete has a certain integrity, which is provided by the integrating function of emotions,

2283

motives and will. Emotions and motives induce an athlete to manifest certain features of the character, and the will (through volitional efforts) carries out the activity through these traits of character. Therefore, methodically correct formulation of educational and disciplinary work on trainings contributes to the active interest of young athletes to sports activities, their results and generates positive personal motives. (Bolotin, & Bakayev, 2017; Ilyin, 2010; Huzar, 2000).

Our previous studies were focused on determining the emotional and volitional (Shalar, Homenko, & Dnishchenko, 2018; Huzar, Sapronova, & Shalar, 2014; Huzar, Shalar, & Pushkina, 2015; Shalar, Kedrovskyy, & Kuvardina, 2014) and motivational (Shalar, Strykalenko, & Novokshanova, 2017; Shalar, Edeliyev, & Shkuropat, 2015; Shalar, 2004) spheres, as well as manifestation of mental states (Shalar, Hlukhov, & Novokshanova, 2018; Shalar, Huzar, & Shkuropat, 2016) of young athletes. Also, in these studies, the dependence between the characteristics of the personality of young athletes and their physical fitness was revealed. We had to consider the indicators of physical and technical preparedness (Shalar, Kedrovskyy, & Izdebskyi, 2015) and the relationship of motor activity with physical health (Shalar, Sabadash, & Homenko, 2016) of teenagers. **The aim** of the work is to discover the relationship between the personality traits and the physical qualities of young gymnasts.

### **Materials and methods**

The research lasted during 2016-2018 and was conducted among young gymnasts-girls of the variety and circus studio "Jin Roh" in Kherson aged 10 to 12 years inclusive. All 10 children who participated in the study, are engaged in the studio for more than 3 years and have repeatedly participated in competitions of the town, regional and all-Ukrainian levels.

According to the results of the study of the properties of personality and physical qualities, a detailed analysis was conducted, the basic regularities of successful development (physical, mental) of young gymnasts were revealed. To carry out the mandated task the following research methods were used:

1. Theoretical analysis and generalization of scientific and methodical literature.
2. Pedagogical observation.
3. Testing (assessment of physical qualities).
4. Questionnaire (evaluation of moral and volitional personality qualities).
5. Methods of mathematical statistics.

This work carried out theoretical analysis and synthesis of published data. The observation method, which resulted in recorded and compared scientific data, was used. Appropriate conclusions were obtained, practical recommendations were developed.

To identify the level of development of individual motor (physical) qualities control examinations (testing) were used. They are represented by standardized in terms of content, form and conditions of motor performance, which are performed in order to determine the level of special physical fitness of young gymnasts. The following physical qualities were assessed: strength, coordination and flexibility. The following exercises were used to assess the flexibility of the spine and the mobility of the hip joints: right, left and front split; gymnastic bridge tilted back with straight legs. Power abilities were evaluated for the following exercises: number of bends and arms exertion with front lying support, quantity of torso lifting and climbing on air cloths. To assess the level of development of coordination abilities (agility, stability of equilibrium), the following motor tasks were used, which were performed on time and accuracy of movements, in our case: double jumps on a rope and a stand on the hands (legs together).

To study the motivational-volitional sphere, the properties of attention and memory, a questionnaire was used. This is an empirical socio-psychological method of obtaining information based on answers to specially prepared questions that correspond to the main task of studying certain properties. The level of volitional qualities of gymnasts was determined by the methods of E.Ilyin and Ye.Feshchenko, namely the definition of the level of self-determination of patience, perseverance, persistence (Ilyin, 2004). The motivation for success and the fear of the failure of young gymnasts were studied according to the method of A.Reana. For identifying the need for approval the scale of approval motivation, developed by American psychologists Douglas P., Crown and David A. Marlowe was used (Weinberg, & Gould, 1998). Emotionality of young gymnasts was determined by a self-esteem test developed by Ye. Ilyin. To determine the properties of the attention of gymnasts the diagnostic test "Confused lines" was used (Ilyin, 2004).

To study the dependence of the development of physical qualities and personality features the method of mathematical statistics and the program MS Excel were used.

### **Results**

The current level of sporting achievements, sports urgent tasks dictate the need to study and evaluate the potency of all body systems of athletes in their relationship, as well as individual characteristics that affect athletic performance.

Therefore, it is advisable to group the previously obtained results of tests for assessing physical abilities and assessing the properties of the individual (Table 1).

The grouping was carried out for each of the indicators, according to the methods, the rating scale was indicated, that is, the maximum and minimum marks:

- physical abilities from 1 to 5 points;
- volitional sphere (patience, perseverance, persistence) from 1 to 3 points;
- motivation from 1 to 4 (1- motivation for failure; 4 - motivation for success);
- need for approval from 1 to 4 points;
- characteristic of emotionality (emotional excitement, intensity of emotions, emotional duration and negative influence of emotions) from 1 to 3 points;
- the properties of attention from 1 to 4 points.

According to the results of the study, there is a close relationship between physical development and individual characteristics of personality: so the girls who are the first on the rating of development of special physical abilities have high indicators of motivational-volitional characteristics, high concentration of attention and do not require a strong need for approval; and vice versa - girls with weak physical fitness indicators have scattered attention and low motivational-volitional personality characteristics.

Table 1. Estimation of the personality and physical qualities of young gymnasts

Indicator Group	General assessment of physical abilities	Overall assessment of the volitional sphere	Motivation	Need for approval	General characteristics of emotionality	Attention
Rating	(max=5)	(max=3)	(max=4)	(max=4)	(max=3)	(max=5)
Anna P.	5	3	4	2	1	5
Polina V.	5	3	4	2	2	4
Diana S.	4	3	4	2	1	5
Victoria Ts.	4	3	3	3	2	4
Valentina P.	4	3	3	3	2	4
Diana N.	4	3	4	2	1	5
Anna H.	4	2	3	3	2	4
Olena M.	4	2	3	3	2	2
Alina L.	4	2	1	3	2	3
Anna R.	3	2	1	4	2	2

For more visual perception and on the base of the results of the study we can trace the dependence on the example of two gymnasts with different individual indicators of physical and psychological qualities (Figure 1).

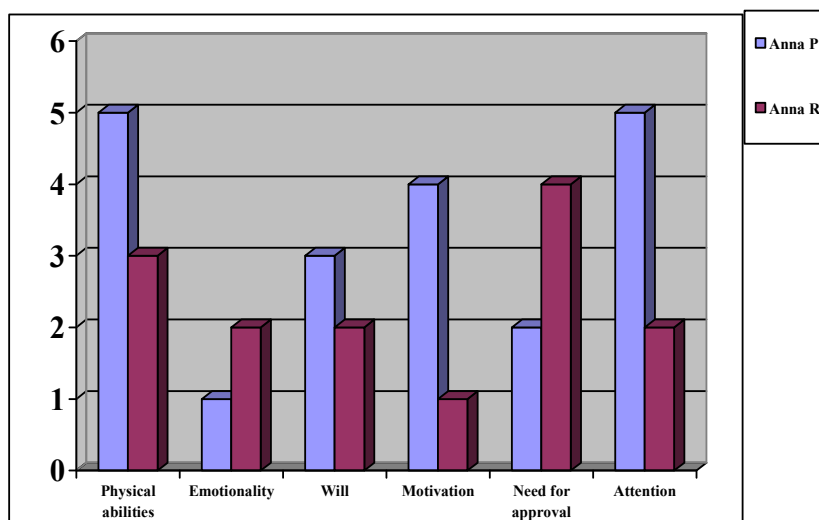


Fig. 1. Comparison of the personality traits and physical qualities of young gymnasts

Both gymnasts of the same age (12 years), with the same experience of gymnastics (3 years) have certain differences in personal development. Anna P., with high levels of physical fitness and attention, is much more motivated by success and purposeful, unlike Anne R., who needs constant emotional reinforcements. The trainer

should take into account the individual peculiarities of development and apply the principle of availability of training (technique) and the upbringing (physical and volitional qualities) of a young gymnast more thoroughly.

During the study, there was a need to test the hypothesis of the relationship between the development of physical qualities and the characteristics of the personality of young gymnasts (will, motivation, need for approval, emotionality and property of attention).

From the standpoint of mathematical statistics, the interdependence between the two indicators, in our case, between the general assessment of the physical abilities of the gymnasts and the properties of the individual, we can calculate using the Pearson correlation coefficient ( $r$ ). The calculations were performed using MS Office Excel.

The results of the correlation analysis of the qualitative connection between the properties of personality and physical development are given in Table 2.

Thus, a positive correlation was observed between the high level of physical qualities and motivation ( $r = 0,69$ ), the average level of volitional qualities ( $r = 0,53$ ) and properties of attention ( $r = 0,55$ ) of young gymnasts. Negative relationship of a high level was found between the physical qualities and needs for approval ( $r = -0,78$ ) of girls. This suggests that, despite the young age, the need for approval is not essential for them. That is, the trainer's pedagogical strategy in the availability and clarity of the formulation of didactic tasks, the identification of appropriate methods and tools has positive affect on the efficiency and effectiveness of young gymnasts' training.

Table 2. The matrix of the evaluation of the relationship between the personality traits and the physical development of young gymnasts ( $r$ )

Indicator	Will	Motivation	Need for approval	Emotionality	Attention
Physical qualities	0,53	0,69	-0,78	-0,30	0,55

Thus, on the basis of the conducted research and comparative analysis, taking the individual psychological characteristics of the personality of a young athlete during sports into account will allow to make the training process more efficient, and will help the trainer to expand the components of the individual approach and determine the methods of work with each athlete.

## Discussion

With the growth of the level of athletic skills changes in the structure of the personality of athletes, engaged in sports, are taking place, which are reflected in the qualitative indicators of the development of individual psychological properties (Platonov, 2018; Zhanneta K, Irina S., Tatyana B., Olena R., Olena L., & Anna I., 2015). Many authors note, that the individual characteristics of athletes are the result of the integration of morphofunctional characteristics and properties of nervous and psychological activity. Initial motives provide a great incentive for the success of the sporting activity (Rodionov, A. & Rodionov V., 2013; Horbunov, 2012; Ilyin, 2004; Wayneberg, & Gould, 1998). Purposefulness, perseverance, courage at an early age are also quite reliable indicators at the selection in the studio of air gymnastics.

In order to develop the motivation to achieve success in sports activities of young gymnasts, H. Bahchanyan's methodical recommendations were used (Table 3).

Table 3. Guidelines for the development of motivation to succeed in sports activities (Bahchanyan, 2009)

№	Factors	Conditions for developing the motivation to succeed in the educational process
1	Level of complexity and novelty of the task.	The objectives must match the capabilities of the athlete and to ensure their success at least 50%.
2	Ability to show independence.	The process of fulfilling the task should provide opportunities for the adoption and implementation of independent decisions.
3	Methods of motivation to achievement.	Methods of encouraging the activities should not be very strict, limiting the autonomy and independence of sports.
4	Methods of evaluation of performance results.	Athletes should know what results the coach is expecting from them, and what indicators will be evaluated. The monitoring system should provide objective results. Activity evaluation should be fair and objective.
5	Contest conditions.	There must be competition of athletes with roughly equal opportunities.
6	Availability of opportunities to achieve success.	There must be all the conditions for achieving positive results; their achievement should not require excessive stress from the athletes and lead to overload.
7	A personal example of adults.	The coach should be motivated to improve the athlete's results.
8	Close and distant consequences to achieve success.	Any, even insignificant achievements should be encouraged. The methods of encouragement must prevail over the methods of punishment.

When forming the motivation to succeed, a great deal of importance is attached to the coach. One of the main functions that a coach must do in his activity is organization of joint activities with their student. An athlete should take part in the discussion of future training, rest, it is necessary to set the nearest and prospective goals together. A coach is one of the most powerful factors, which affects the success and performance of the athletes. Optimism in all cases, in any training and competitive situations; emotional self-control; ability to be flexible and versatile in dealing with athletes, to be at the right moment soft and hard; sincere and deep belief in the student, in his capacity and ability to achieve great success in sports – these are some of the qualities that are so important for a coach to have and not to forget to develop (Horbunov, 2012; Ilyin, 2004).

We can assume that due to the purposeful use of these tips by trainers, there was a rather strong interdependence between the development of physical abilities and the motivation of young gymnasts. Significant correlation of  $r$ , which is equal to 0.69-0.50, was traced between physical qualities, attention and will of athletes. This is due to the fact that in air gymnastics it is necessary to apply a lot of efforts and time to master the skills necessary for further development in this sport. The better developed volitional quality and attention - the higher the indicators of physical fitness will be. The reverse dependence and correlation of the low level were noted between the indicators of physical fitness and the need for approval and emotionality of young gymnasts.

### Conclusions

According to the results of the study, it was established, that the concentration of attention, moral and will characteristics are inextricably linked, both with the development of physical qualities, and with the success of sports-competitive activities. By the Pearson correlation coefficient, a very substantial connection was found between physical qualities and motivation ( $r= 0,69$ ). And between physical abilities and the properties of attention and the will of young gymnasts  $r = 0,55$  and  $0,53$ , respectively. It was found that the girls who appeared to be the first on the rating of development of special physical abilities had high indicators of motivational-volitional characteristics, high concentration of attention and did not need a strong need for approval; and vice versa - girls with weak physical fitness indicators had scattered attention and low motivational-volitional personality characteristics. Considering the research data, we can note, that in preparing young athletes of a higher class, in addition to traditional approaches to their preparation, which are focused mainly on the development of physical qualities, improving the functional capabilities of the body and arming with technical and tactical skills, one should pay attention to the development of their individual psychological characteristics.

The study of the intellectual sphere of young gymnasiums and the determination of interconnection with coordination abilities should be the **perspective direction** of further researches.

**Conflict of interests.** The authors note that there is no conflict of interests.

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