

## The applying of the concept of individualization in sport

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### Abstract:

The aim is to summarize the impact results of the application of an individual approach on the level of special efficiency; to reveal the influence of an individual approach on the functional state of the sportsmen. Materials: There were 23 qualified basketball players, aged 20-22, involved in the research. Results: We have developed the theoretical conception of individualization of the training process. This concept lies in showing the leading factors in the individual structure of sportsmen's proficiency, in the analysis of regularities and prediction of individual dynamics of competitive results and in the development of universal methods of individualization of the training process. We also established that the use of individualization of sportsmen's training has positive effect on the autonomic balance and workability of sportsmen. Conclusions: The developed concept of individualization of the process of sportsmen's training helps to optimize the autonomic balance and to increase the sportsmen's workability.

**Key words:** conception, individualization, sport, basketball, volleyball, workability.

### Introduction

An individual approach in sport covers the big range of problems. These problems start from sports selection to definition of individual programs for sportsmen's training [2, 4, 10, 11, 12, 14]. The number of researches on this subject constantly grows [21, 22, 29, 30, 32, 35]. It should be noted that in the publications of the last years the authors consider an individual approach not only according to moving abilities, but also psychological, moral and even spiritual ones. Voronov V.M., Gorelov A.A., Sushchenko V.P. and Hlopetsky A.P. (2015) [1] discuss the questions of combination of spiritually-moral and psycho-moving determinants in sports selection of the mixed single combats. According to the authors, the aspiration to justice, self-development, self-knowledge should prevail over the desire of dominating in a group of peers. Tyshchenko V.A. (2014) [37] studies the individualization issues of qualified handball players' training in the context of the analysis of players' features of different roles. Kozina Zh.L. (2009, 2010, 2011) [5, 6, 7] presents, in her works, the concept of individualization in game sports and shows the system of directions for determination of individual features of sportsmen who are the representatives of command game sports. This concept is constructed on synthesis by means of mathematical methods of indicators of anthropometrical data, physical proficiency, psychophysiological and functional possibilities for determination of individual features of sportsmen and possible players' combinations for solving the tactical tasks. The works of such scientists as Tavana M., Azizi F., Azizi F., Behzadian M. (2013) [34] also consider the problem of searching of optimum combination variants of sportsmen in command kinds of sports.

Therefore, in recent years, an increasing number of authors take into account not only physical, but also psychological and social aspects of individualization in sport. One of such researches represented in the work of Pot N., Schenk N., van Hilvoorde I. (2014) [27] which study the problem of pupils who choose a kind of sports. The authors show the social and biological reasons of going in for sport by children of school age.

At the same time, the individual approach is like a reflection of individual originality and uniqueness of each person, It determines the features of a person's choice of activity and a way of life in general [6, 17, 37]. So, Yermakova T.S. (2015) [38] points to various approaches of developing of health culture depending on the individual features. The author specifies that formation of health culture for each person is individual and depends on social factors, functional possibilities, psychological features and personal preferences.

In European scientific tradition, there are various theories of individuality [17]. For example, Aluja A., Blanch A., Blanco E., Balada F. (2015) [15] revealed that people with various emotional characteristics have different formation of reaction to fright. It is necessary to consider in pedagogical and medical teaching. Boag S.

(2015) [16] showed the high importance of theoretical developments for practical realization of personal assessment of efficiency of individual activity.

However, the most widespread of these theories is the theory of temperaments, individual distinctions according to thinking and perceptions of information, etc. [7, 17, 24]. If in the earlier researches, the characteristics of temperament, thinking and emotions were studied out of interrelation (Pavlov I.P., 1994, Nebylitsyn V.D., 1969). Nowadays, an increasing number of researchers investigate interrelations of various aspects of mental and psychophysiological spheres. For example, Henderson H.A., Wachs T.D. (2007) [24] showed the influence of temperament types on the developing of cognitive and emotional characteristics. Shiloh S., Salton E. and Sharabi D. (2002) [30] showed the influence of intuitive or rational style of thinking on ability to accept the non-standard decisions and possibility to take into account these indicators in the process of selection in various fields of activity. Stanovich K.E. and West R.F. (1998) [32] revealed the influence of individual psychological distinctions on efficiency of psychological reactions of a single and a difficult type.

Sports is one of the brightest manifestations of individuality [2, 5, 6, 12]. As Lysakova A.N. (2014) [9] specifies, sport demands not only taking into account the available specific features of people, but also creates psychological conditions for individual development. Cieslicka Miroschawa, Schowidski Mariusz (2012) [18] showed the need of taking into account specific features of rowers at sprint distances. In their turn, Dmitruk K., Adameczyk W., Cieglicka M., Napieracha M. and Wasielewska K. (2008) [19] showed the need to improve the control of the training system in swimming for development of sportsmen' individual skills.

The authors consider the various approaches of individual training of sportsmen in game (Kozina Zh.L., Ermakov S.S., Pogorelova A.O., 2012; Mitsuru Tokuyama, Hirosugu Ohashi, Hisao Iwamoto, Kunio Takaoka, Mamoru Okubo, 2005), individual kinds of sports (Yurov I.A., 2012; Carpov M.A., Vorontsov V.V., 2012; Podrigalo L.V., Galashko M.N., Galashko N.I., Prusik Krzysztof, Cieslicka Mirosława, 2014), students' self-training (Ermakov S.S., Ivashchenko S.N., Guzov V.V., 2012) and military men' training (Markelov V.V., 2013), theoretical basing (Rowe N.F., 2014; Platonov V.N., 1997; Kozina Zh.L., 2011) and training of young sportsmen (Boychenko N.V., Ermakov S.S., 2010).

According to this aspect, the usage in programs of sportsmen' training the individual models of technical and tactical actions gets a great importance in professional sports (Mutter F, Pawlowski T., 2014), game sports (Kozina Zh.L., 2011; Ermakov S.S., 2012), single combats (Latyshev S.V., 2013) and management of infrastructure (Hallmann K., Wicker P., Breuer C., Schönherr L., 2012).

To conclude, we should mention that nowadays we can observe the expansion of aspects of our research of individualization of sportsmen' training. However, there is no unique approach to determine the specific features of sportsmen. The features should be taken according to interrelation of the indicators that reflect various sides of efficiency, psycho-physiological opportunities, psychological features, social factors, etc.

Therefore, at the present stage, the development of the unique concept of individualization in sport gains special topicality.

Besides, the development of determination algorithms of the specific features of sportsmen with identification of individual structure and dynamics of development of the separate indicators is actual not only for sport, but also for other spheres of our life.

## Method

*The aim* is to summarize the results of application impact of an individual approach on the level of special efficiency, to reveal the influence of this individual approach on functional state of the sportsmen.

*Methods of research:* theoretical analysis of literary data, physiological methods, pedagogical experiment, methods of mathematical statistics.

There are 23 qualified basketball players, aged 20-22, who took part in this research. 11 of them were in the experimental group, 12 were in control one. The testing was carried out in October 2013 and in March 2014. The sportsmen knew about the content of the tests and agreed to take part. All the complex biological inspections of sportsmen were conducted due to the laws of Ukraine about health protection, Helsinki declaration (2000), directives of the European society 86/609 concerning participation of people in medical and biological researches.

## Results

On the basis of generalization of literary data, results of the experiments and carrying out of the general theoretical and analytical work, we developed the general scheme of the ways of individualization of the process of sportsmen' training [5, 6, 7] which consists of the following:

For creation of the individual training programs are necessary (fig. 1):

1) to define the leading factors in individual structure of efficiency. In this case, it's important to apply factorial analysis by the method of the main components with determination of individual meanings of factors in combination with cluster analysis;

2) to reveal the regularities of individual dynamics of competitive productivity. On the basis of this productivity, it is possible to predict the competitive result on a certain period of time and correct training

process. In this case, it is important to apply the sinusoidal regression models;

3) to make active the personal aspect of individualization (conscious goal-setting). In this case, it is important to apply interactive and multimedia technologies.

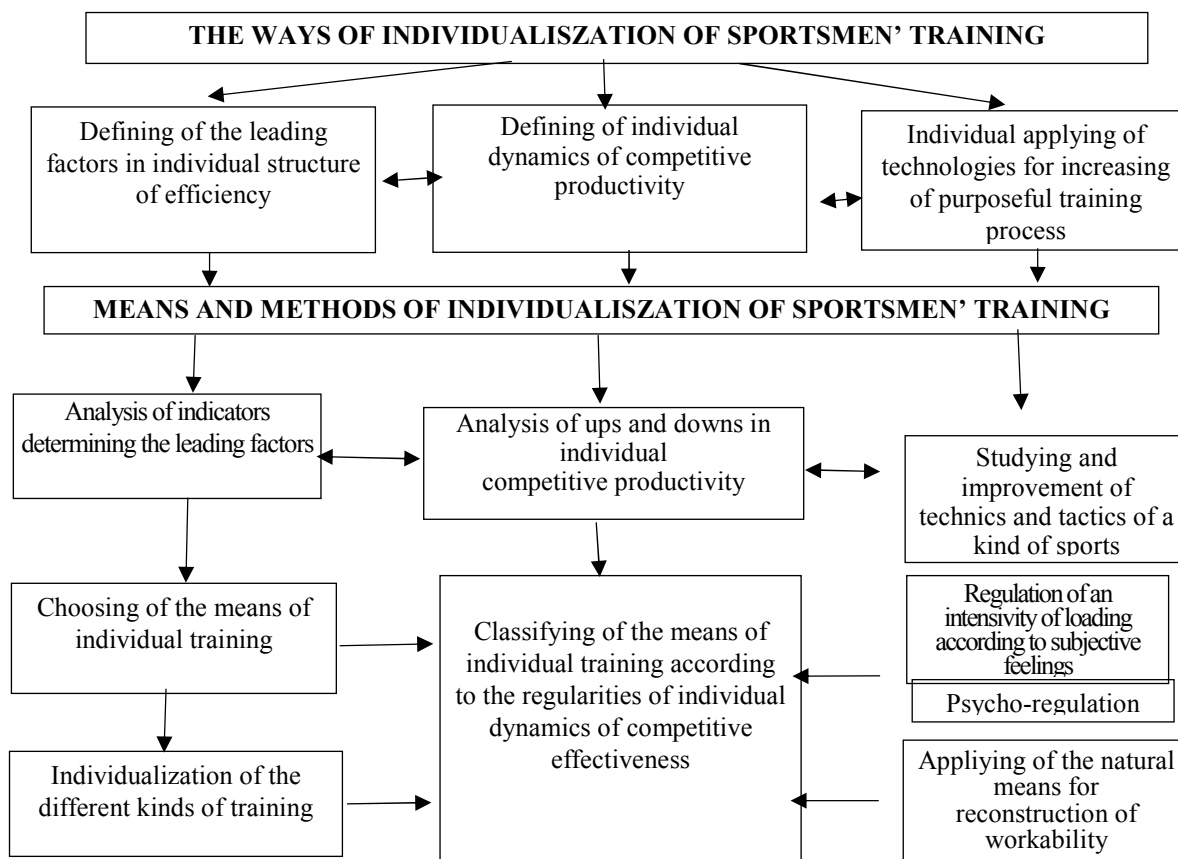


Fig. 1. Directions, methods and means of individualization of sportsmen' training in different kinds of sports

We propose effective, informative, integrated and simple concept of individualization of training process for coaches and sportsmen.

This concept allows:

- to identify the individual characteristics of the players and their top quality very quickly;
- to identify the competitive dynamics of individual results and predict the result of competition at different time sections;
- to complete the teams optimally;
- to build the individual training programs efficiently;
- to develop the universal methods of individualization of sportsmen' training;
- to use the interactive technologies for individualization of sportsmen' training effectively.

The application of the concept of individualization of sportsmen' training leads to increase in the efficiency and stability of competitive activity of players. It increases their level of functional and psychophysiological capabilities, enhances their adaptive abilities and normalization of autonomic functions, Kozina (2009).

The applying of this concept during the year helps to optimize an autonomic balance. The experimental group of sportsmen felt the lowering of their heart rate in 13.3%, the RR-intervals increased in 16.9%, the amplitude of the mode of the RR-intervals decreased in 39.7%. The indicators of variation range of the mode of the RR-intervals changed greatly. They increased more than 50%. The rate of the index of regulatory systems tension decreased more than 50%. These changes are significant if  $p$  is  $< 0.01$ , and some if  $p$  is  $< 0.001$ , Kozina (2009).

In general, we should note that the application of the concept of individualization helps to activate the parasympathetic part of autonomic nervous system and inhibit the sympathetic division of this system. It shows positive impact of an individual approach on the developing of the training process of reconstruction.

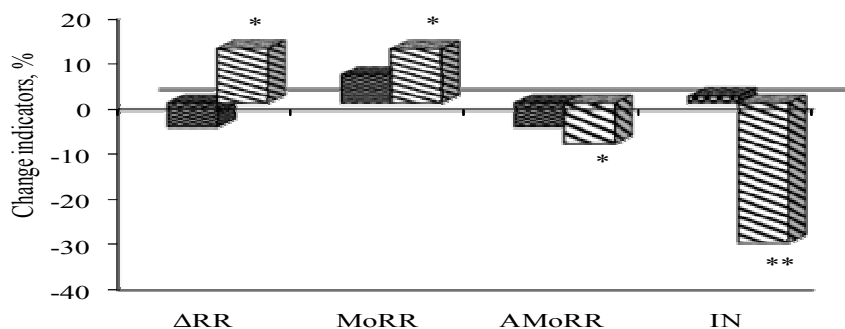


Fig. 2. The changing of the indicators of autonomic balance in control (n=12) and experimental (n=11) groups after the applying of developed system of individualization of sportsmen' training:

\* -  $p < 0,05$ ; \*\* -  $p < 0,01$ ; ▨ - experimental group; ▩ - control group;

ΔRR – variation range of the RR – intervals, s;

MoRR – mode (the duration of the most frequent RR- interval), s;

IN – index of tension of regulatory systems of heart activity, y.e.

Change indicators, %

Notes. Negative values in changing of indication means the decreasing of the characteristics

The results of the study demonstrates the positive impact of the application of the developed system of individualization of sportsmen' training on increasing of their efficiency. After the ending of the experiment, the experimental group showed more efficiency, determined by the test PWC170, if  $p$  is  $< 0.05$ . In its turn, the control group showed unreliable increase of efficiency. It was regulated by the results of the test PWC170. However, before the experiment the indicators of these two groups were identical, Kozina (2009).

## Discussion

We should note that some authors Vorono et al. (2015), Hallmann et al. (20120, Henderson (2007) try to give integrated assessment of individuality, taking into account a wide range of indicators. These indicators include the properties of nervous system. It occurs in conjunction with predominance of one of the cognitive types and development of certain physical qualities and psychophysiological abilities. However, in this case, characteristics of individual differences in each indicator group is given separately Mischuk (2014), Mustafa (2014), Platonov (1997). It means without their integration. It such way, we give the assessment of individual differences in sport. We create the schemes of structure of individual efficiency or competitive activity for each indicator group separately Efremenko (2014), Mustafa (2014), Platonov(1997. This structure consists of individual indicators. More effective is representation of the structure of individual characteristics of the sportsmen by the means of factors. Each factor should reflect the range of indicators. We have showed this in our research. In this context, we propose an algorithm for constructing the individual models of complex preparedness. This allows you to evaluate individual differences not according to certain indicators, but according to totality. It also allows you to combine all the measured indicators into a single system.

The sportsmen are generally classified according to function (game roles) in sports games Kozina (2009), Kozina (2012), Mischuk (2014), Mustafa (2014) and Tyshchenko (2014). We should note that the issues of individual differences concerning the other individual characteristics (psychological, physiological, psychophysiological) are not practically studied. Though, we can meet the presence of preparation recommendations for players of different game roles. That is why, we propose the algorithms for determining the leading factors, including a wide range of analyzed indicators in the structure of sportsmen' efficiency. It is a new approach to the problem of individualization of training.

In sport physiology and sport medicine, the individual differences are classified according to reaction characteristics on the load of the cardiovascular and nervous systems. Our conception, methods and algorithms for construction of individual programs allow you to combine physiological, psychological and psychophysiological indicators into single integrated assessment of the individual characteristics of a sportsman.

## Conclusions.

1. We developed theoretical conception of individualization of training process. This conception is based on the system analysis, laws of development of self-organizing systems, information laws of fundamental sciences, communication, logical and intuitive forms of knowledge. The idea of conception lies in determining

of leading factors in the individual structure of sportsmen' efficiency, that is made with the help of analyzing a wide range of indicators; in the analysis and prediction of individual dynamics of competitive performance; in the development of universal methods of individualization of training process.

2. The application of individualization of sportsmen' training had a positive effect on autonomic balance and sportsmen' workability.

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