



Implementation of an individual approach in sport

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Abstract

Objective of the study was to scientifically substantiate the methodological approach to the implementation of the principle of individualization in sports training.

Methods and structure of the study. The scientific work used: analysis and generalization of scientific and methodological literature, practical experience, pedagogical testing, ascertaining and shaping experiments. Quantitative indicators were processed using mathematical statistics with their subsequent logical interpretation. The study was conducted in the natural conditions of the training process on a group of middle-distance runners.

Results and conclusions. Athletes with different indicators of qualities that affect sports fitness can be at the same level in the sports hierarchy. This is due to the presence of individual compensatory capabilities. The same sports result has a different individual "value" and, therefore, it is obtained by each individual athlete at a different "price".

In the course of the study, it was determined that the implementation of the principle of individualization in sports training consists in organizing a pedagogical process based on an individual assessment of the relationship between a sports result and the components of an athlete's preparedness that determine it, in building a quantitatively expressed model of an athlete's preparedness for a certain time and the implementation of corrective actions on the level of preparedness of the athlete.

Keywords: *sports training, control, individual approach, management.*

Introduction. Among the most urgent problems of practical pedagogy and the theory of sports training is the development of methods for individualization of the pedagogical process [1]. Unfortunately, in the real conditions of training, an individual approach is more declared than methodologically worked out. Recommendations for its implementation are made on the basis of environmental generalizations of data obtained on a "typical contingent" and are only suitable for someone averaged "it" ("they"), and an individual is always unique and specific with individual characteristics.

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and generalization of scientific and methodological literature, practical experience, pedagogical testing, ascertaining and shaping experiments. Quantitative indicators were processed using mathematical statistics with their subsequent logical interpretation. The study was conducted in the natural conditions of the training process on a group of middle-distance runners.

Results of the study and their discussion. We have determined that the implementation of the principle of individualization in sports training consists in organizing a pedagogical process based on an individual assessment of the relationship between a sports result and the components of an athlete's preparedness that determine it, in building a quantitatively expressed model of an athlete's preparedness by a certain time and performing corrective actions on the level of an athlete's preparedness.



Assessment of the athlete's readiness level involves measuring indicators that reflect the state of the cardiorespiratory system (CRS), neuromuscular apparatus (NMA), psychomotor functions (PMF) and physical fitness (FP). Determination of the state of athlete is carried out by registering the reaction of the cardiovascular system (CVS) to standard work, the Stange test and the relative vital capacity (VC). As a specific standard running work, based on the position that the fatigue mechanism has a strict specificity, due to the type and nature of the work [2], 1000 m running at an average speed of 5.55 m/s is used for runners with sports achievements of two minutes and better in 800 m and 5.0 m/s for lower-skilled runners [3]. When running at such a speed, the specificity of work and the linear relationship between the intensity of work and the dynamics of vegetative processes in the body are preserved. The load is assessed by the dynamics of heart rate indicators taken during the run and the recovery time of heart rate.

To study the relationship of various indicators of preparedness with the level of qualification, a comparative (inter-group and longitudinal individual) correlation analysis was carried out. The first included athletes of higher qualification (MS - I category, n=13), the second - less qualified (II-III category, n=10). Testing conditions were maximally standardized. The indicators of FP, the state of the CRS were measured on Tuesdays, after the day of rest (on Sunday) and the retracting work on Monday 10-15 days before the competition, and the state of NMA and PMF was determined on the last day of training on the eve of the day of rest before the competition.

So, the most significant ($p \leq 0.05$) relationship with the sports result in both groups has only two indicators of FP - running at 60 and 400 m. differences in heart

rate during running, recovery time and the Stange test. The condition of the CRS was assessed by the ability of the muscles to maximum tension and maximum relaxation, the muscles that take the main and direct part in running locomotion, namely: calf, biceps and quadriceps. Intergroup differences in these indicators were not revealed, as well as in the PMF indicators, although it is logical that such indicators as reaction time (RT), reaction to a moving object (RMO) and volitional muscle effort (VME) characterize tactical athlete's ability. The question is logical, why did the rest of the indicators recommended in the scientific and methodological literature turn out to be uninformative?

To resolve this contradiction, a two-year longitudinal study was conducted on runners (n=8, MS - I category) of the dynamics of sports results depending on the nature of changes in fitness indicators.

Informative significance ($p \leq 0.05$) of almost all indicators included in the test block was revealed, but at the individual level, some are informative, others are not (see table).

It is obvious that the indicators that characterize preparedness and readiness for competition show a fairly close relationship with sports results in some athletes, while others lack it. This, to a certain extent, explains the contradictions that exist in the literature on the degree of information content of indicators characterizing the state of the respiratory system. An analysis of the correlation relationship between heart rate indicators and sports results during work and the dynamics of its recovery shows that they have a high relationship with the level of preparedness in almost all subjects (75% at work and 87.5% during recovery). But even with such a high level of relationship, personal deviations are obvious, requiring individual retrogenesis in order to include (or not include) these indicators in the diagnostic block.

The relationship of diagnostic indicators with the effectiveness of competitive activity

Sportsman	Indicators / r x100											
	60 m	400 m	5th standing jump	VC, cm/kg	heart rate	Recovery time	AT of the 4-head muscle	AT of the 2-head muscle	calf muscle AT	RT	RMO	VME
1	-	88	-65	-90	92	85	66	-	-	-	-	-
2	-	93	-75	-75	79	77	-	-	-	64	-	-
3	78	83	-71	-69	92	97	-	-	-	-	-	-82
4	-	82	-70	-	90	88	-88	-82	-78	65	-	-
5	-	87	-	87	92	70	-66	-	-	74	-	-
6	-	95	-78	75	84	-	-77	-	-	-	75	-
7	-	79	-74	-	87	91	76	73	-	-	87	-81
8	-	95	-75	79	74	84	77	84	-	-	-	-68

Note: AT - amplitude of tension



The pronounced individual nature of the relationship between psychomotorics and the level of sports preparedness is also noted.

Consequently, *the model of the athlete's state*, based on the generalization of average group data, cannot take into account the individual compensatory capabilities of a particular person. Establishing an individual correlation relationship between the level of sports readiness and its various indicators made it possible to implement an integrated approach with operational, current and staged pedagogical control and calculate the regression coefficients for each indicator relative to a particular athlete. In the diagnostic block for the formative pedagogical experiment, the most "influential" indicators were selected individually.

The experiment, conducted in natural conditions of the training process, involved two groups of runners who did not have differences in the level of preparedness ($p > 0.05$), formed by pairwise comparison with subsequent drawing of lots. The experiment was closed, comparative, and according to the scheme of evidence - parallel, direct.

For each participant of the experimental group, model characteristics of readiness were developed on the basis of regression dependences of sports results and the most informative indicators of readiness. When calculating the model characteristics, we proceeded from the need to ensure a guaranteed minimum level of preparedness, that is, the planned result was taken into account as the minimum possible. Pedagogical influences during the experiment were mainly aimed at increasing special physical fitness and CRS, and optimizing the state of NMA and PMF, which consisted in maintaining them at the level of the best indicators recorded in the preliminary study. In the control group, the diagnostic block included the most influential indicators on sports performance according to the average group data.

In the course of the experiment, *operational and current testing was carried out and the necessary adjustments were made to the training program*. The experiment showed the effectiveness of pedagogical control and the methodology for constructing a real functional model of the necessary state of an athlete to achieve the planned sports result. Through purposeful pedagogical influences, based on the desire to achieve compliance with the current state of the individual model, it was possible to bring the subjects to the main competitions in the state and the best preparedness and readiness. All this ultimately led to a greater increase in sports results in the experimental group. So, if in the groups before the experiment the

results were 115.4 ± 2.2 s and 115.7 ± 2.5 s, ($p \geq 0.05$), then after the experiment in the experimental group the results increased to 113.2 ± 2.4 s, while in the control group it was up to 114.6 ± 2.2 s. ($p \leq 0.05$). It is obvious that a real consideration of the differences between actions and their results is possible only at the individual level.

Conclusions. The advantage of this approach to the implementation of the principle of individualization in sports training is obvious. It allows assessing the real state of preparedness and readiness of an athlete, predicting his sports result, bringing him in an optimal state to the main competitions of the season. The organization of the pedagogical process, based on the individual retrospective genesis of the relationship between a sports result and the components of preparedness that determine it, makes it possible to tangibly approach the solution of the problem of managing the training process, and in a broader sense, the human condition. Athletes with different indicators of qualities that affect sports fitness can be at the same level in the sports hierarchy. This is due to the presence of individual compensatory capabilities. The same sports result has a different individual "value" and, consequently, it is obtained by each specific athlete at a different "price".

Consequently, an individual (in the sense of concrete, "differentiated") approach is something required by the logic of things and objectively arising from the philosophical principle of determinism, from the philosophical dialectical-materialist doctrine of the concreteness of truth and the recognition of the dialectical connection between the general and the separate.

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