

INDIVIDUALIZATION METHODS OF SPRINT  
RUNNERS TRAINING AND THEIR INFLUENCE  
ON GENDER FEATURES OF ATHLETES



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**Анотація**

В статті представлені концептуальні напрями індивідуалізації підготовки кваліфікованих спортсменів. Розроблені керівні принципи, методи індивідуалізації підготовки спортсменів в річному циклі, спеціалізуються в спринтерському бігу. Обґрунтовано ефективність використання розробленої методики та її вплив на гендерні особливості спортсменів.

**Ключові слова:** спортсмени, методи індивідуалізації, гендерні особливості.

**Анотація**

У статті наведено концептуальні напрями індивідуалізації підготовки кваліфікованих спортсменів. Розроблені керівні принципи, методи індивідуалізації підготовки спортсменів у річному циклі, що спеціалізуються в спринтерському бігу. Обґрунтовано ефективність використання розробленої методики та її вплив на гендерні особливості спортсменів.

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**The problem formulation.**

Social, organizational, materially-technical and methodological factors are responsible for the progress of modern sport. Without downplaying the value for the growth of sporting achievements of all these factors, experts say that further increase of the efficiency of training athletes is primarily connected with the optimization of their training techniques [3, 5, 9]. Herewith the last - is a complex and multifaceted process of effective use of the aggregate of a number of components that provide the optimal level of athletic results, determining the degree of readiness for sports achievements, and which should be based primarily on the implementation of the principle of individualization [8, 10, 11].

One of the priority directions, leading to the increase in the effectiveness of the training of high-class athletes, is the process of optimum distribution of specific defined training influences. The success of this process is possible only if status of the athlete, his individual characteristics is taken into account and adaptability of the responses of different urgency, intensity and focus on the impact of the specified. [1, 3, 4, 9].

**Analysis of recent research and publications.** Data of scientific and methodical literature [1, 3, 4, 9]

made it possible to determine the direction of individualization of training of qualified athletes:

- Modeling of the competitive structure and level of special preparedness;

- The adequacy of the content of training and competitive pressures to morphological and psychological characteristics of athletes;

- Given the current state of the athletes efficiency and fluctuations in connection with the phases of the OMC;

- Correction of training, competitive and out of training actions in accordance with the individual characteristics of female athletes.

Presented priority directions of individualization of training athletes require realization in practice of declared in the theory and methodology of sports training principles of cycles and waviness, improving orientation of the training process, and others [1, 3, 4, 9].

When organizing the macrocycle of training athletes specializing in speed-strength kinds of athletics it is advisable to observe a sequence of decision-making [3].

So, firstly should be determined the planned athletic result on the mostly significant events of the upcoming season, and developed a model of competitive activity, depending on the desired result. Then should be detected the level of mor-



phological and functional properties, and special training of athletes. Increasing the level of special physical readiness will contribute to the improvement of technical skills, and increasing the speed of competitive exercise.

The next step is to create a model of the dynamics of indicators that assessing the state of the athlete in the macrocycle, which should include data about changes the most significant characteristics of the special physical and technical readiness. During the year, sequentially compares the individual data with the models as the basis for selecting areas of work and ways to achieve the desired training effect. To do this, terms of the control tests need to be installed and the most informative indicators for assessing the current functional status of athletes at each stage of the annual training cycle need to be selected.

In the future, the optimum size of the volume of training load is determined, which is distributed in a way as to ensure the steady improvement of the special athletics performance and timely achievement of its set value. It is necessary to constantly analyze interrelation between indicators of control exercises (tests), load value of fixed assets and athletic result. It is also necessary to examine the dynamics of the individual recovery with alternating loads one or a different orientation and volume that can aggravate or accelerate recovery processes [7].

At the final stage it is advisable to make a gradual comparison of actual and planned results. Test task, which evaluates the various aspects of the athletes training can be used (preferably twice a month) as indicators. Next (if necessary), based on a comparison of the real (individual) and a model dynamics of factors of special readiness should be made the correction in the training program if there are any significant discrepancy. Thus, harmonization of principles of pro-

gramming and individualization of training athletes are achieving in the correction.

One factor should be noted, which is important for the effective operation of the coach with the women - identifying athletes with somatotype: feminine and masculine. This direction in sport is defined as a gender-differentiated approach [2, 13], which implementation can increase the level of special physical readiness of athletes. Analysis of the scientific literature has shown that research in this area represented by solitary works [2, 7, 13], which determines the relevance of the chosen topic.

**The purpose of the research** is to justify the effectiveness of the use of the developed methods of individualization of training athletes, specializing in sprinting and its impact on gender features of the athletes.

**Organization of the research and methods.** In the research, which was conducted on the base of the research laboratory of Olympic sports «Gomel State University named after F. Skaryna», participated the girls (n = 18), that specializing in sprinting and have sports qualifications of candidates and masters of sports.

Analysis of competitive activity, data about the organization of training of highly qualified athletes in the macrocycle, detected the linkages of training influences and the state of the athletes, as well as scientific advances in the area of sports training contributed to the development of methods of individualization of training of qualified athletes, which is a prerequisite system, mainly determining the organization of the real process of preparation in a year cycle of a particular athlete, specializing in sprinting (Pic. 1).

During the year was taking place the pedagogical experiment, during which athletes of experimental (n = 8) group were training according to our method of individualized training and runners of the control

group (n = 10) which were training with personal trainers. Standardized methodology S. Bem «Masculinity / femininity» had been used to determine the gender type of subjects.

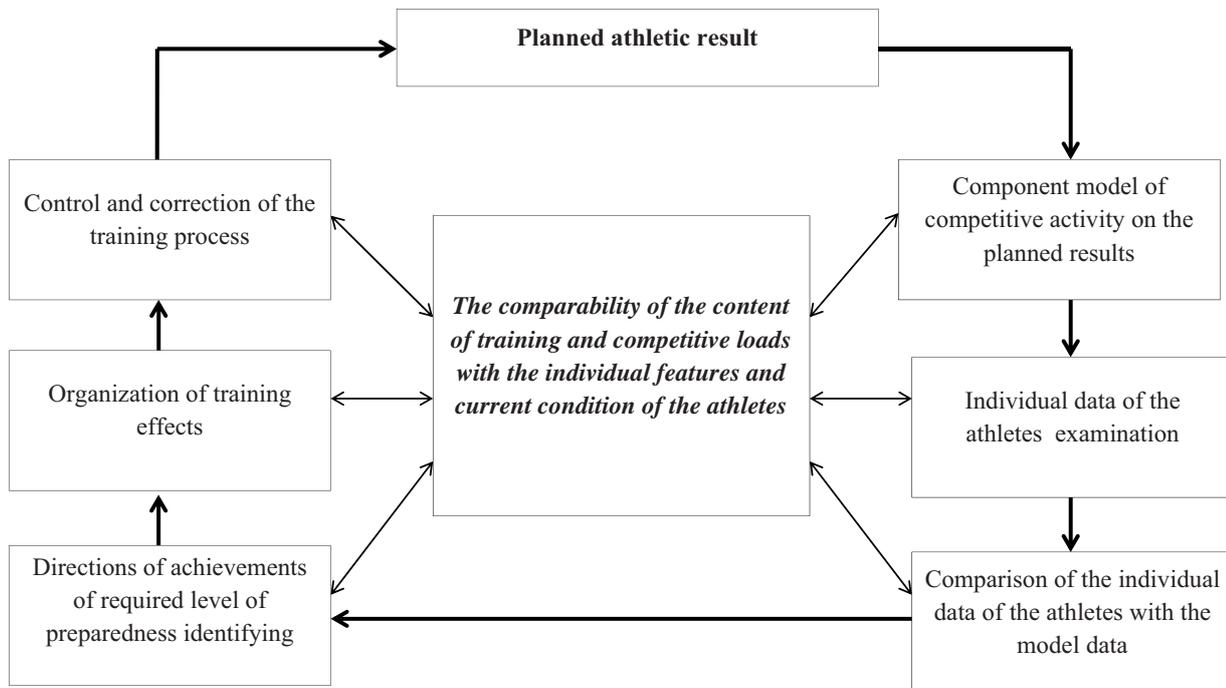
Results and discussion. The practical implementation of the developed method provides a single strategy in the distribution of loads on mesocycles (eg, percentage), and the volume of training load is determined individually in accordance with the objectives of the special power or sprint training, especially the flow of regenerative processes, the level of preparedness, gender characteristics, etc. Following of this model of the constructing of the training woman's process contributes to the fact that the undulating rhythmic changes in the functional state of the body of the specific athletes correspond to the same dynamics of the training influences. The load structure was mainly used in mesocycles preparatory and specially-preparatory stages.

As for the competition period, there is the content and volume of the loads for athletes (with no deviations in health status) were slightly modified in accordance with the terms of the most demanding competitions. The last was related to the fact that the implementation of the specific load in unfavorable phases of the OMC allowed subsequently perform successfully enough in competitions that occur in the data phase.

Indicators in the tests, with a high correlation interrelation with the results in competitive exercise had been recorded for monitoring changes in the level of special physical preparedness of runners on short distances. This test was performed for each athlete in the same, the most favorable (postmenstrual or postovulatory) phase, thus avoiding errors in the results associated with the change in the level of manifestation of motor abilities for OMC.

Using a gender-differentiated approach in training of the experimental group of athletes had a sig-





**Pic.1 Individualization methods of athletes training in the annual cycle**

nificant impact on credible change in the results of some indicators of the special preparedness (Pic. 2).

The women's 20 m running of the move, characterizing the level of the absolute speed has improved, on average, in the experimental group of masculine girls from 2.34 to 2.26 with ( $p < 0.05$ ), while the feminine - with 2, 46 to 2.42 with ( $p > 0.05$ ).

A significant improvement in the results is observed in the women's 60 meters of masculine girls of the experimental group, where the average result of the experiment has changed from 7.91 to 7.76 with ( $p < 0.05$ ). In feminine runners for this indicator revealed less significant and inaccurate averages - from 8.00 to 7.92 with ( $p > 0.05$ ). The data about run on 300 meters also showed significant improvement in the experimental group of athletes. masculine women raised their average result of 2.06 s ( $P < 0.05$ ), and feminine at 1.20 ( $p > 0.05$ ).

As for the assessment of the power-speed abilities (long jump from place), athletes from both gender groups were able to show a significant improvement in its results. Masculine women improved, on av-

erage, results from 248 to 264 cm, and the feminine - from 239 to 248 cm.

In the control group, dedicated to the standard method, there was a slight (no significant 5% significance level) increase results in every test

Increasing the level of special readiness runners of the experimental group contributed to the growth of results in the race for the main distance. Thus, the average result in the women's 100m in a season of masculine athletes improved by 0.22 seconds, while the feminine - by 0.13 seconds. As for the control group of athletes, they are, on average, improved their results in running the 100m distance on 0.02 seconds.

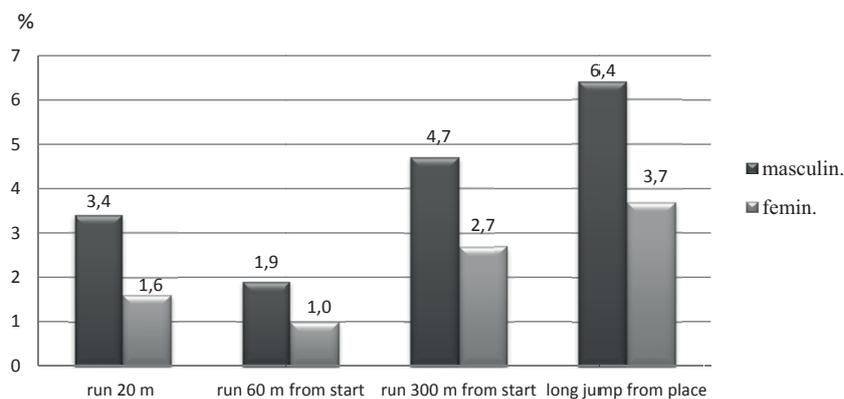
Data from various studies [3, 13, 14] show that for feminine athletes the constancy of specific biological cycle is characteristic, as well as the Phase of its course, and it is necessary to individually take it into account when constructing the training process for masculine athletes, mostly, there is a violation of the cyclical fluctuations of the functional state of different organs

and systems of the female body as a whole, caused by the phases of the OMC. Thus the organization of the training process with them is possible in the image and likeness of a male athletes and may be based on the general terms of sports training.

However, in any case while choosing different types of training influences throughout mesocycle training, equal with OMC duration, it should be noted that the largest amount of exercise with weights better to be performed in postovulatory phase of the body, and the volume of the jumping exercises should be planned on postmenstrual and post-ovulatory phase of the cycle. At the same time, implementation of these training funds in the premenstrual and menstrual phases of OMC need to be completely refused, as it can adversely affect the reproductive function of female athletes.

Keep in mind the fact that for feminine athletes characterized by persistence of specific biological cycle, as well as Phase of its course, it is necessary to take into account the individual in the construction of the training process. In masculine athletes, increasingly, there is a vio-





**Pic.2 Changes of the index in the special preparedness for the experiment period (%) in the experimental group for masculine and feminine athletes**

lation of the cyclical fluctuations of the functional state of different organs and systems of the female body as a whole, due to the phases of the CMC. Thus the organization of the training process will be available to them in the image and likeness of male athletes and may be based on the general terms of sports training.

Conclusions. The practical realization of the model in the pedagogical experiment has significantly reduced the total annual volume of the training load of different directions, because its organization was more effective and individualized. In addition, developed content and distribution of training influences helped streamline and facilitate the current and landmark control.

It was found that the application of the developed method of individualization of runners on short distances preparation contributed to a greater extent improvement of the level of special preparedness and increasing of the athletic result of athletes' masculine and less feminine type.

Prospects for further research. It is planned to develop a program-

ming algorithm of individualization of athletes training that specializing in speed-strength types of athletics, on the basis of promising technological solutions.

#### Bibliography

1. Bushtruk, V.D. Preparing the athlete in the long-term aspect / V.D. Bushtruk, V.F. Kostyuchenko, E.G. Shubin // SPbSUAI. SPb., 2002.- 32 p.
2. Vorozhbitova, A.L. Gender in sports activities / A.L. Vorozhbitova. - M.: Flint, 2011. - 227 p.
3. Wrublewskiy, E.P. Individualization of training process of athletes in speed-strength kinds of athletics: monograph / E.P. Wrublewskiy - M.: Soviet Sport, 2009. - 232 p.
4. Issurin, V.B. The bloc periodization of sports training: Monograph / V.B. Issurin. - M.: Soviet Sport, 2010. - 288 p.
5. Kizko, A.P. State and prospects of improving the system of training athletes /A.P. Kizko.- Scientific notes of the University name P.F. Lesgafta. - 2016.

- № 4.- pp. 121-125.
6. Krutsevich, T.Y. Sexual dimorphism and gender policy in matters of physical education and sport / T.Y. Krutsevich, E.A. Bilichenko // Sports Medicine / NUFKS Ukraine. - 2011. - № 1-2. - S. 23-27.
7. Sergeenko, L.P. Sports selection: monograph /L.P. Sergeenko. - M.: Soviet Sport, 2013. -1048 p.
8. Pavlov, S.E. The technology of preparation of sportsmen / C. E. Pavlov, T.N. Pavlova. - MO, Shchjolokovo Univ. Marhotin P.Y., 2011. - 344 p.
9. Platonov V.N. The system of training athletes in Olympic sports. The general theory and its practical applications / V.N. Platonov. - Kiev: Olympic Literature, 2004. - 808 p.
10. Pshebylsky, V. Personalisation sports training / V. Pshebylsky. - M.: Theory and Practice of Physical Culture, 2005.- 197C.
11. Fiscalov V.D. Sport and the system of training athletes/ V.D. Fiscalov. - M.: Soviet Sport, 2010. - 392 p.
12. Shakhlina L. YA.-G. Medical and biological basics of sports training women / L. YA.-G. Shakhlina. - Kiev: Naukova Dumka, 2001. - 326 p.
13. Shevchenko T.A. Rationale for the use of gender -differentsirovannogo approach to sports activities /T.A. Shevchenko // Scientific notes of the University name P.F. Lesgafta. - 2014. - № 7 (113). - S. 189-192.
14. Bem, S. Theory and measurement of androgyny // J. of Personality and Social Psychology. - 1979. - v. 37. - P. 1047-1054.
15. Women in the track and field // New Studies in Athletes. - 2005. - 7. - P. 61-66.

