

PHYSIOLOGICAL CHARACTERISTICS OF HIGHLY QUALIFIED ATHLETES IN THE DYNAMICS OF THE OVARIAN–MENSTRUAL CYCLE

The article presents the results of the survey highly athletes, as well as data obtained from studies of psychophysiological state and functioning of the organism athletes in all phases of the menstrual cycle.

Key words: *psycho-physiological and psycho-emotional state, the phase of the menstrual cycle, the female body, the training process.*

Introduction. At the present stage of development of sports the urgency of the problem of training women athletes due to the fact that in the process of sports activity is not enough attention is paid to the impact of different loads of volume and intensity on the female body. In particular, the cyclicity of the functions of the hypothalamic-pituitary-ovarian-adrenal system, i.e. the ovarianmenstrual cycle, is not taken into account (OMC).

The biorhythm of the menstrual cycle, which is a typical biological process occurring in the female body, as a time period from the first day of the previous menstruation to the first day of the next, is maintained throughout the reproductive period. The cycle duration is usually constant: 21, 26, 28, 31, 36 days. However, the OMC is characterized by a certain variability: the onset of the first phase is not always stable, which is usually associated with mental overload.

In sports practice, in our opinion, it is advisable to use the classification of S. A. Yagunov, A. R. Radziyevsky, who divides the OMC into 5 phases. Phase I – menstrual (1-5 days); phase II – postmenstrual (6–12 days); phase III-ovulatory (13–15 days); phase IV – postovulatory (16–24 days); phase V-premenstrual (25–28 days). These five phases, which are present in each cycle, regardless of its duration, are the consequences of hormonal and morphological changes in the pituitary gland, ovaries and uterus. Meanwhile, each of the phases is characterized by a certain concentration of estrogen in the blood, which causes changes in the activity of the Central nervous system, and therefore determines the sports performance [2, 5].

The aim of the work was to study the changes in the psychophysiological state of athletes in different phases of OMC.

Organization of research and methods. The study involved 15 highly qualified womenathletes specializing in running views and multiathlon at the age of 18-27 years, of them: 4-masters of sports of international class, 11-masters of sports, with at least 8 years of training experience.

To study the peculiarities of the OMC flow, we conducted a survey, which was preceded by the determination of the cycle phase (calendar method) of each sportswoman for the study in the dynamics of the MC.

Results of the study and their discussion. The analysis of personal data allowed to obtain the following results: the average age of the respondents-20,5 years. Athletics began to engage in at the age of 9,5 years. The age of menarche in the surveyed athletes varies from 12 to 15 years, which is within the physiological norm. In percentage terms: 38% – the first menstruation began at 12 years, respectively, 30 % – at 13 years, 17 % – at 14 years, 12 % – at 15 years, and at other times 3 % of respondents. Menarche time, according to some experts, indicates the degree of puberty and overall physical development of female athletes [3, 4]. It can be concluded that all the respondents began to engage in sports before the first menstrual period.

According to the questionnaire data, the duration of the OMC, the majority (43.6 per cent) athletes – 27–29 days, 27,5 % – from 21 to 23 days, 21,7 % – from 23 to 25 days and from 7,2 % to 30–32 days. The duration of menstruation is $4,8 \pm 0,62$ days, which is within the physiological norm.

Interesting for consideration were indicators of well-being, the subjective assessment of which was given to the girls in the premenstrual and menstrual phases of the cycle. About headache in the premenstrual phase was reported by 18 % of respondents, in the menstrual phase – this figure was noted only by 2 %. Breast engorgement during the premenstrual phase of the experience the vast majority – 95 %. The period of the premenstrual phase is accompanied by a decrease in efficiency in 39 % a, in the menstrual period it was noted by 90 % of girls. And 42 % of athletes feel pain in the pelvis in this period of the cycle.

In the subjective evaluation of the results of their competitive activity in the I phase of the OMC we got the following result: 78 % of girls noted a high negative impact of this phase on the sports result. At the same time, over 80 % of respondents complain of increased fatigue in phase I, 15 % in phase II, 15 % in phase III – 52 % of girls, less than 10 % in phase IV, and 72 % of athletes in phase V. The appearance of unreasonable irritability was noted in the first phase of the cycle – 60 % of respondents, in II – only 9 %, in III – 49 %, in IV – 12 %, in V – 67 % of girls.

The data obtained indicate a significant impact of hormonal changes that occur in the female body in certain phases of the OMC, on the functional and psycho-emotional state, which in turn has a negative impact on the sports result.

To identify changes in the psycho-emotional state, which is one of the determining factors of the success of both competitive and training activities of the athlete [1], in the dynamics of the MC, we conducted a survey on the method of SAN, which is a test, answering the questions of which the subjects correlated their state with a number of signs on a multi-stage scale consisting of indices (3 2 1 0 1 2 3) and located between thirty pairs of words of opposite value, reflecting the mobility, speed and rate of function (activity), strength, health, fatigue (feeling) as well as the characteristics of the emotional state (mood). The sum obtained on each scale allowed to reveal the functional state of the sportswomen in each of the phases of MC.

Analyzing the average data on the group of athletes, we can conclude the following: a significant rise in the psycho-emotional state occurs in the II (postmenstrual) and IV

(postovulatory) phase, which indicates an increase in all three parameters. The average score is 6,1 and 6,2, respectively. The increase in fatigue, which is displayed in an obvious decrease in health, decreased activity and deterioration of mood of girls, is observed in the I (menstrual), V (premenstrual) phases of MC. Similar characteristics are inherent in the III (ovulatory) phase of MC, but to a lesser extent.

Summary. Thus, according to the results of the study, it can be concluded that a significant change in the psycho-emotional state of highly qualified athletes during the ovarian-menstrual cycle.

Thanks to the information obtained, the coach and athletes can correctly assess the current state of the body in the dynamics of the OMC, which will help to overcome possible difficulties that periodically arise in accordance with certain phases of the cycle. When planning the training process, it is necessary to take into account the biological characteristics of the female body and the changes that occur in it, which will allow to individualize the stages of the training process by planning an adequate load and timely making the necessary adjustments.

References

1. П'ин Е. П. Psychomotor organization of man: Textbook for higher educational institutions of St. Petersburg, Peter, 2003, 384 p.
2. Vrublevsky E. P. Individualization of the training process of female athletes in speedpower athletics. Moscow: Soviet sport, 2009. 232 p.
3. Soboleva T. S. On the problems of women's sports // Theory and practice of physical culture. 1999. No. 6. P. 56–63.
4. Shakhlina L. Ya.-G. Medical and biological principles of sports training for women. Kiev: Naukova Dumka, 2001. 326 p.
5. The technology of individualization of training of qualified athletes (theoretical and methodological aspects): monograph / E. P. Vrublevsky [and others]. Gomel: State University named after. F. Skaryna, 2016. 223 p.

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ОСОБЕННОСТИ ПСИХОФИЗИОЛОГИЧЕСКОГО СОСТОЯНИЯ ВЫСОКОКВАЛИФИЦИРОВАННЫХ ЛЕГКОАТЛЕТОВ В ДИНАМИКЕ ОВАРИАЛЬНО-МЕНСТРУАЛЬНОГО ЦИКЛА

В статье представлены особенности динамики субъективной оценки психофизиологического состояния на протяжении овариально-менструального цикла у высококвалифицированных спортсменок – легкоатлетов, специализирующихся в беговых видах и многоборье. Показано, что спортсменки подвержены существенным изменениям психоэмоционального состояния, происходящим в соответствии с фазами специфического биологического цикла, каждая из которых характеризуется тем или

иным состоянием менструальной функции и организма в целом. Учет данного положения при построении тренировочного процесса позволит индивидуализировать его этапы путем планирования адекватной нагрузки и своевременного внесения необходимых корректив, что будет способствовать повышению его эффективности.

Ключевые слова: психофизиологическое и психоэмоциональное состояние, фаза менструального цикла, девушки, учебный процесс.

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ОСОБЛИВОСТІ ПСИХОФІЗІОЛОГІЧНОГО СТАНУ ВИСОКОКВАЛІФІКОВАНИХ ЛЕГКОАТЛЕТОК В ДИНАМІЦІ ОВАРІАЛЬНО-МЕНСТРУАЛЬНОГО ЦИКЛУ

У статті представлені особливості динаміки суб'єктивної оцінки психофізіологічного стану протягом оваріально-менструального циклу у висококваліфікованих спортсменок-легкоатлеток, що спеціалізуються в бігових видах спорту і багатоборстві. Показано, що спортсменки схильні до істотних змін психоемоційного стану, що відбувається відповідно до фаз специфічного біологічного циклу, кожна з яких характеризується тим чи іншим станом менструальної функції і організму в цілому. Облік даного положення при побудові тренувального процесу дозволить індивідуалізувати його етапи шляхом планування адекватного навантаження і своєчасного внесення необхідних коректив, що буде сприяти підвищенню його ефективності.

Ключові слова: психофізіологічний і психоемоційний стан, фаза менструального циклу, дівчата, навчальний процес.