

The study of biorhythms of athletes during recovery using hardware and software complex "IMEDIS-FALL"

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Constantly changing conditions of the state of the environment lead to high physical and psycho-emotional stress on the human body, which manifests itself in overstrain of physiological systems and a decrease in the functional state of the body as a whole. At the same time, the biorhythms of individual organs and systems of the body change. This leads to a violation of the adaptive response and "human immunological reactivity" [1].

Since the 30s of the twentieth century, many scientists have been studying and deciphering the basic rhythms of the human body, from the molecular level to the general rhythm of life. Thus, N.Ya.Perna [2] proposed the "theory of three biorhythms" (physical, emotional and intellectual), according to which the period of these biorhythms is rigidly set from the day of birth and does not change throughout a person's life. The author identified biorhythms with a period of 7 to 47 days, their wave-like nature, which makes it possible to establish the periods of minimum and maximum manifestations of physiological states. This theory was criticized in connection with the analysis of the dynamics of the intensity of physiological processes in the body, which did not reveal the absolute stability of circadian and circa monthly rhythms using the example of such vital indicators as body temperature, energy and plastic exchange [3]. Further study of the nature of biorhythms made it possible to develop classifications of rhythmic processes. The most common classification of F. Horberg (1964) and subsequently supplemented by N.A. Agadzhanyan (1987) contained a spectrum of biorhythms, when the mutual transition of one biorhythms to others was envisaged. In this case, the leading role in organizing the activity of a living organism is played by daily (circadian) and seasonal biorhythms.

The study of the nature of biorhythms made it possible to expand the understanding of the processes of adaptation of the human body to the factors of the external environment and its performance in extreme conditions, this is especially characteristic of sports activity [1].

On the basis of studies of biological rhythms, the authors succeeded in simulate predicted condition organism athletes. The predicted modeling was carried out by statistics methods of mathematical supported by the diagnostic verification of adequacy the selected model. This prediction of the functional state and the effectiveness of the performance of athletes was tested during the performance of the leading players of some football teams [4].

A. Yudt developed tables for determining the performance of athletes, and later H. Fryueh improved the tables and created bio-maps for building biorhythms of any person [5].

Thus, the study of the biorhythms of the human body and the interpretation of the results obtained have proved that rhythmic fluctuations of different nature have a wave-like character and contribute to the formation in the human body of an optimal relationship with the external environment, aimed at

adaptation of the body to its change.

The hardware and software complex for diagnostics and therapy "IMEDISFALL" represents a modern achievement in the field of information technology and allows, taking into account the established psychological personality characteristics (introvert, extrovert, flexible personality type) to establish the physical, emotional, intellectual biological rhythms of a person, as well as the general state of the body. At the same time, the physical cycle lasts 23 days and affects the strength, the body's resistance to external and internal influences, good physical well-being, and physiological processes in the body. The emotional cycle lasts 28 days and controls the creative, mental state, thinking and perception of the world around us. The intellectual cycle lasts 33 days and regulates the functions of thinking, memory, receptivity to knowledge. The general health cycle lasts 38 days and reflects the functional state of the body and its susceptibility to infection. The maxima and minima in the wave nature of the biorhythm curve reflect, respectively,

In order to determine the effectiveness of recovery of athletes after intense physical exertion, taking into account biological rhythms, in our studies we used the hardware-software complex "IMEDISFOLL: electropuncture vegetative resonance test (ART) and the method of adaptive bioresonance therapy (BRT) with electromagnetic oscillations characteristic of the patient himself.

The research involved 35 athletes of the level not lower than the master of sports. The studies were carried out from February to August 2003 in the morning hours of training from 11 to 13 hours. At the same time, for each athlete, the same research algorithm was repeated, including diagnostics using the ART method before and after training, additionally after training, conducting an BRT session using 4 strategies, followed by behavior at the final stage of the diagnostic study using the ART method.

When diagnosing by the ART method, we used test preparations, indicators of biological indices, indicators of physical stress Selenium met. D60, D30 and D200, as well as indicators of adaptation reserves and others. Physical stress indicators were compared with the existing classification of the manifestation of fatigue [6]. Also, in each study, the orthostatic indicators of heart rate were measured using a stopwatch and blood pressure measurements were performed using the method of N.S. Korotkov. Data processing was carried out using the statistical analysis program for Windows Statistica 6.0 at $p < 0.05$.

Due to the closed nature of the material, research data are not provided. During the research, the following was established:

1. The effect of the method of bioresonance therapy combined with exogenous bioresonance therapy with fixed frequencies accelerates the recovery process of athletes after intense physical exertion and causes a change in the biorhythm of the general state of the body, which is estimated by the area between the cycle curve and the abscissa axis for a study cycle of 30 days.

2. Physical, emotional and intellectual biorhythms are not

change under impact intense physical loads and bioresonance effects. These biorhythms are constant or "constitutional" for each athlete.

3. The process of fatigue and recovery is of a wave nature, which for athletes of high fitness class with certain indicators of adaptation reserves (RA) fluctuates in the range of from good 1 to high 3.

4. Increase operability athletes at constantly repetitive phases of fatigue and recovery using the BRT method according to strategy 4 has an increasing wave character with increasing RA indicators throughout the entire exposure cycle.

5. The performance of athletes is confirmed indicators competitive activity at international tournaments, the European Championship and the 2003 World Championship in Greco-Roman wrestling.

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