ANALYSIS OF ADAPTIVE AND RESTORATIVE PROCESSES OF THE BASKETBALL PLAYERS' ORGANISM TO COMPETITIVE LOADS AS INDICATORS OF PHYSICAL EFFICIENCY

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Introduction. The athletic result is determined by the achievement of the "sports form" by the period of responsible competitions. If, in general terms, the theory of sports training determines the ways to achieve a sportive form, many details of this problem are not yet clear. These details arise in connection with the peculiarities of the sport, the competitive calendar for the sport, and also due to insufficient information about what is happening in the body when the sports form is reached.

Relevance. Currently, there are still issues and problems in diagnosing and predicting a sporting outcome. The intensity of sports wrestling has increased to the maximum, the account is conducted for hundredth and even thousandths of a second. But the results are constantly growing, the latest achievements of science, technology and pedagogical methods of training are used. But not only sports activities need objective as full as possible express techniques. Such a problem arises in medicine, and in the social sphere, as well as in physical education at accessible levels.

The purpose of the study: was the theoretical justification of the expediency of using a comprehensive program of pedagogical, medico-biological and psycho-physiological tools and methods aimed at training basketball players for competitive loads and adaptation to them.

Objectives of the study:

1. Identify means of correction of body functions, disturbed by the influence of training loads.

2. Consider a comprehensive program of additional training activities, which contributes to the activation of the training process and the restoration of the body of basketball players after increased training and competitive loads.

Methods of research:

- analysis of educational and methodological literature on the problems of functional state and performance;
- determination of the level of physical working capacity;
- Analysis of physical and technical preparedness for video recording of the game.

Results of the study and their discussion.

The problem of physical working capacity is one of the central in the physiology of work and sports. It occupies an important place in ecological physiology, too, since physical working capacity largely reflects the level of human adaptation to inadequate environmental conditions. It is no coincidence that

one of the leading signs of the adaptive behavior of biological systems is the "maximum of external work".

In the field of medicine, the evaluation of physical performance is also of great practical importance, since the level of physical working capacity, being one of the components of the integral concept of "health", is indirectly associated with the functional state of the vital systems of the body. Undoubtedly, a high level of physical performance is predetermined by the functional properties and state of all systems of the body. We can cite hundreds of different kinds of phenomenological studies that state the influence of certain factors on physical performance, but do not explain the physiological mechanisms of these influences. The least studied in this problem, strangely enough, was the role of the neuromuscular system, in particular, the role of the rate of voluntary relaxation of skeletal muscles. Although in the literature there is a sufficient amount of indications of the extreme importance of relaxation in the sporting and working life of a person.

It should also be noted that all the most effective methods of psychoregulation, self-regulation and auto-training are based on relaxation. Despite the existence of many factors that affect the special physical performance of basketball players and its physiological value, ultimately, if there is an optimal level of development of contractile properties of muscles, it depends on two major factors. First, from rational expenditure (economization) of biological energy, and, secondly, on the rate of replenishment (restoration) of the body's energy resources directly during motor activity.

The economization of energy resources is achieved in several ways:

1. Realization of the law of "saving active muscle mass," that is, the inclusion of only those muscle groups that take part in it directly, and all other muscles should be as relaxed as possible. The need for relaxation in this case is explained by the fact that any, even insignificant tension, but a large number of secondary muscle groups leads to significant useless energy expenditure, which can several times exceed the energy expenditure required to perform a particular physical work. Practical implementation of this principle is possible, first, if you have the skills for rapid voluntary tension and relaxation of different groups of skeletal muscles, which are acquired through purposeful training with the help of special relaxation exercises and methodical techniques. And secondly, in the absence of the so-called "psycho-emotional tension" and, accordingly, the hypertonicity of skeletal muscles that arise due to increased CNS excitability, for example, in overtraining or in the weakness of the CNS inhibitory systems, and cause severe disturbances in the process of relaxation, intermuscular coordination and coordination of movements in general. To the same consequences lead neuroses, various kinds of emotional disorders, as well as any exciting, including pharmacological, effects on the central nervous system.

2. The choice of the optimal pace of movement, characterized, for example, by the ratio of the frequency and length of the running steps or by choosing the optimal ratios in the duration of the periods of stress and rest pauses between muscle contractions. For fast cyclic movements, the alternating (alternating) rhythm of activity of antagonist muscles is characteristic. At an average pace of

movements, muscular activity recorded, for example, by electromyography, terminates somewhat before the end of the movement. Further movement is provided by forces of inertia and is extinguished by the elastic forces of the extended antagonist. At this rate of movement, called "elastic", the least participation of active muscle forces is observed, and it is economically most profitable.

The slowest rate of movement is considered to be the least profitable, when the muscles-antagonists are tense at the same time and work in a yielding mode, for example, when performing precision tasks (work of a jeweler, watchmaker, etc.) or a very fast rate of movement. With an increase in the rate of cyclic movements, many researchers noted a disturbance in the alternating rhythm and the appearance of a partial overlap in the activity of the antagonist muscles, which, with an even greater increase in the rate of movement and bringing it to the limit, can lead to simultaneous activity in the antagonist muscles and stopping the movement (fixation). Partial application of the activity makes it difficult to move, since the antagonist muscles, with each reduction, have to overcome the resistance (stretch) of the antagonist muscles that do not have time to relax in time, which, naturally, requires additional expenditure of energy to perform the same work.

In addition, in this situation, the manifestation of the maximum rate of contraction (explosive qualities) of muscles, which is necessary to achieve high running speed, is significantly hampered. Partial imposition of the activity of muscle-antagonists can occur not only with an increase in the rate of movement, but also with a decrease in the rate of muscle relaxation.

3. Perfect technique of performing movements (running). This is a generalized concept, which includes many components and, above all, excellent coordination and optimal rhythmic structure of movements. Both these components, as already shown in the previous paragraphs, are directly dependent on the functional activity of the CNS brake systems and the rate of voluntary relaxation of skeletal muscles. No less important and perhaps one of the main criteria of excellent technique in coaching practice is easy, free running without unnecessary tension of secondary muscle groups, that is, compliance with the same law "saving active muscle mass."

4. By reducing the heat production of working muscles and, correspondingly, reducing the intensity of the activity of thermoregulatory systems that ensure the preservation of the temperature homeostasis. This way of economizing energy expenditure is realized when all the conditions listed in the previous paragraphs are observed.

5. Additional saving of energy resources of the body is achieved due to a decrease in the intensity of the functioning of oxygen transportation systems (respiratory, cardiovascular) providing muscular activity. The participation of the entire muscle mass in intensive physical work is the cause of the greatest burden on the cardiovascular system taking place in the whole body. Therefore, with the inclusion of all four mechanisms described above, which ensure the economization of the functioning of the neuromuscular system, the demand for oxygen transport

systems decreases, the intensity of their activity decreases and, naturally, the consumption of biological energy decreases.

At present, the practice of sports training has shown that it is impossible to effectively solve the main tasks of adaptation and recovery of the organism after physical exertion without developing and substantiating methods of influencing the organism that act as additional training factors. According to many researchers, in sports that have a high level of psychoemotional tension, rapidity of motor reaction and the presence of complex coordination motor actions, it is necessary to study more closely individual changes in the functional condition of athletes and the possibility of using different variants of pedagogical, medico-biological and psychophysiological means and methods to correct it.

The analysis of scientific and methodological literature showed that the problem is:

- Insufficiency of development of differentiated use of rehabilitation measures;

- Contradictions in the use of physical means of recovery in the competitive period of training athletes in acyclic sports.

The existing contradictions between the variety of methods of physical means of restoration and the insufficient scientific justification for their application in the process of training athletes for competitive activities require further study.

An analysis of the scientific and methodological literature on the research problem showed that the limiting factors in the adaptation of basketball players to competitive activities are:

- Adaptation to mental competitive loads, considered one of the reasons for the decrease in the effectiveness of the implementation of technical and tactical actions related to the target accuracy (throws on the ring, assists, etc.) in various situations in tension in the match;

- the problems of removing fatigue and restoring the functional systems of the body of basketball players in the process and after intense physical exertion.

Analysis of the results of preliminary studies of competitive activities of basketball players showed that the heterochromic adaptation process was noted: the players adapt to physical loads more successfully than to the psychological ones, both in the process of urgent and long-term adaptation.

Analysis of the video recording of the game and the obtained data on the technical and tactical preparedness of basketball allowed to note a large number of martial arts in the conditions of the struggle, which indicates a good physical readiness of the players. Attention is drawn to the fact that during the game the basketball players of both teams performed a large number of throws on the ring, and a sufficient part of them achieved the goal. Many times basketball players of both teams used partner insurance, ball interceptions, response to deceptive movements of the enemy, etc. But at the same time it should be noted that, despite the fact that the game activity of one of the teams was higher, there was a significant decrease in comparison with indicators of the results of rational motor activity of the second team.

A more detailed analysis of the level of technical preparedness showed that the effectiveness of gaming activities of young men is significantly affected by fatigue, which is manifested in basketball players against the background of a "high" general condition of the central nervous system, "good" performance and "high" respiratory function parameters, and therefore there are mental discomfort, a high degree of mental fatigue and a beginning disadaptation. Analysis of scientific and methodical literature and video recording of the game allows us to formulate general recommendations for the prevention and prevention of mental discomfort, mental fatigue and beginning disadaptation to increase the workload of aerobic nature, to include in the training process directed breathing exercises and regularly carry out rehabilitation activities.

The conclusion. However, in the theory and practice of sports training in basketball, there are not enough scientifically grounded recommendations for implementing programs that include pedagogical and psychophysiological tools aimed at optimizing the process of adapting basketball players to high training and competitive loads. Therefore, we put forward the idea of the need for optimization and tested in other sports sports tools and methods aimed at stabilizing the psychoemotional sphere and restoring the functional systems of the body of young athletes after intense physical exertion.

The most effective and tested in the practice of sports training, in our opinion, are the following means of recovery:

- breathing exercises directed influence,
- auto-training,
- elements of yoga.

Thus, the data of our study confirm the need to improve the process of recovery of the organism after increasing physical and mental loads by means of a purposeful complex impact of the program of additional measures, including directed training and restorative procedures, contributes to the increase of the effectiveness of the competitive activity of basketball players.

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