

Physiological bases of improvement system of boxers sports training

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Abstract. Productivity of competitive activity in boxing is provided with continuous improvement of a training technique and training; search of means of increase of level of all-physical and special readiness. The insufficient attention paid to the physiological bases of rationalization of educational and training process by a choice and use of the most effective preparatory and bringing exercises with similar structure of competitive actions. These skills are formed on the basis of extrapolation of motor acts that allows reducing considerably number of acquired physical exercises, to reduce the volume of a training load and to raise level of technical readiness. Formation of skills of afferent synthesis of the motive actions which main components are: the motivation, memory, starting information, allows using more effectively motivation of occupations by boxing as means of versatile harmonious physical and spiritual and moral development. The support on physiological bases of process of improvement of sports training of boxers promotes increase of efficiency of training process.

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Introduction

Feature of sports activity is its orientation on continuous increase of results that demands the corresponding conditions which provide:

- Identification of degree of compliance of the chosen sport to adaptation opportunities of an organism;

- Development of model of the athlete readiness to achieve the planned result on the basis of an optimum ratio of all-physical and special preparation in each cycle of sports preparation [1];

- Continuous search of ways of improvement of a training technique and the training providing identification and use of new means and methods of increase of sports skill; successful adaptation of an organism to more difficult training load [2].

Sport preparation is carried out according to the main regularities establishing nature of interrelations between the maintenance of a training load (taking into account its leading components: volume and intensity; the size of morpho-functional shifts in an organism) and extent of adaptation reorganizations [3]. Use of these regularities causes need of the solution of a number of the complex problems influencing productivity of training process. One of them is – an establishment of a rational ratio between all-physical and special readiness of athletes as basis for the technical, tactical, psychological and intellectual parties of training process [4]. Physical exercises of a certain orientation at their rational ratio, sequence, a dosage promote a gain of indicators of muscular force, speed, endurance, agility, a spring ability and other qualitative parties of motive activity; formation of the

motive skills necessary for assimilation of a technique of motive actions [5]. The motive skills, they are quicker and more successfully athletes seize a technique of the physical exercises making the maintenance of the chosen sport [6]. However such approach to the organization of training process considerably increases the volume of muscular loading, reduces physical activity, promotes faster exhaustion.

Improvement of sports preparation system possibly, in our opinion, by development of ability to extrapolation of motive actions and to formation of skills of afferent synthesis [7]. Value of extrapolation consists that it allows choosing a large number of preparatory and bringing exercises the most effective [8]. It causes considerable reduction of volume of a training load, and also identification of conditions at which each preparatory exercise yields the maximum result both for assimilation of a new technique, and for improvement of providing functional systems [9].

The purpose of this work was theoretical and methodological justification of the importance of use of physiological bases in improvement system of sports preparation in boxing.

Tasks:

1. To reveal fundamental conditions of growth of sports skill of boxers.

2. To develop and check efficiency of a technique of improvement of sports training of boxers taking into account conditions of increase of an endurance of an organism in the course of pedagogical experiment [10].

Main part

Materials of researches testify also the growth of sports skill in process the Analysis of scientific and scientific and methodical literature points to insufficient attention of coaches and highly skilled athletes of formation of skills of afferent synthesis of the motive actions, having high potential for increase of indicators of technical readiness. According to P.K. Anokhin [11], structural components of afferent synthesis are: motivation, memory, and starting information. We revealed motives of sports activity which can be distributed on impact on the personality (internal and external) and on an orientation (personal focused, social caused and socially significant).

The internal motivation is focused on the solution of personal problems: to become strong and hard; to increase self-confidence; to learn the opportunities and abilities, etc. [12]. External motivation carries out a supporting role (for example, a close arrangement of children's sports school; the coach – sport teacher, brought-up outstanding athletes; the father or the elder brother were engaged in this sport, etc.); personal the focused motivation (to become the master of sports; to show the parents and friends the abilities, opportunities, etc.); social caused the motivation (to play sports for health strengthening; sports raise opportunities for future career, etc.), socially significant motivation (to enter a national team of Russia; to become the prize-winner of the largest competitions, etc.). Personal the focused motives at the initial stage of sports preparation prevail over others; however the relation of athletes to training process is defined by socially significant types of motives [13]. In process of transformation personal the focused motives the socially significant are formed independence, responsibility, discipline and other leading moral and strong-willed qualities defining informative and physical activity, optimum working capacity, as basis for increase of level of sports skill [14]. The temporary nervous-connection associations put at the heart memory are considered as turning aside in the central nervous system of relationship. In competitive activity of boxer's types of memory are shown mechanical, logical, motive, long-term and short-term. For example, thanks to the logical memory semantic connection between various elements of the motor act which causes productivity of a type of a technique and option of its realization taking into account features of the arisen situation [15] is established.

The place and value of motive memory in system of sports training of the boxer are caused by its impact on formation of skills of performance of preparatory and main actions in their rational

sequence and interrelation when the final provision of the previous motor act becomes initial for the subsequent, more difficult technique. Effective completion of shock action in the planned point fixes in memory of the martial artist of a detail and a leading link of a technique, their sequence, used ways of movement, a distance [16]. It forms competitive experience thanks to which in a match with the unfamiliar strong opponent the boxer in a similar situation applies the ways of the organization of motive activity approved earlier.

By means of long-term memory skills of an effective choice of a competitive distance, a complex of actions of the defense, false receptions at emergence of the corresponding situation that creates necessary prerequisites for formation of individual style of conducting fight are formed. The role of short-term memory consists in objective perception of features of performance of known attacking actions with the opponent in various situations taking into account a ratio of its overweight indicators, length of the top and bottom extremities [17].

Important components of afferent synthesis are starting information. Information of the situation is urged to form skills of effective competitive activity at some features of an arrangement of a ring in a gym, a large number of the spectators expressing negative emotions. The technique of formation of skills of use of this information includes in the contents the motive tasks directed on adequate perception of actions of the opponent, formation of skills of forecasting of its motor acts and programming of own motive actions in the circumstances [18].

The role of starting information as signal to the beginning of a match consists in reduction of the boxer, in a condition of mobilization readiness for implementation of the program of an antagonism with the opponent. In combat sports afferent synthesis demands mobilization of intellectual and motive opportunities and abilities as in the course of continuous highly dynamic change of situations as result of an active antagonism of the opponent, the attacking boxer is compelled to change the program of the actions and in each new situation to create other algorithm of attack or counterattack. In this regard, requirements to consolidation and variability of motive skills, as to one of conditions of increase of sports skill significantly increase. Therefore, formation of ability to extrapolation and afferent synthesis of motor acts needs to be considered as physiological bases of improvement of system of sports preparation. For verification of this provision pedagogical experiment in which 32 qualified boxers of the I category and KMS of 15-17 years took part was made. There were organized control group –

(KG) and experimental (EG) – in everyone on 16 athletes. Before pedagogical experiment testing of indicators of physical readiness for the purpose of identification of its initial level with use of the following control exercises was held: run of 30 m (s), 100 m (s), 3000 m (min.), a long jump from a place (cm), pulling up on a crossbeam (a quantity of times), shot put (3 kg) the right and left hand (m). The analysis of results of testing didn't reveal essential distinctions on level of physical readiness of boxers of KG and EG ($p>0.05$). Level of productivity of competitive activity was determined by the following indicators also: ratio of exact percussions and the past actions during one round; number of applied protective receptions and their efficiency during attack and counterattack; ability to acceleration of motive actions to the round end. Data processing of research didn't reveal essential distinctions on degree of special readiness of athletes of KG and EG ($p>0.05$).

In KG training classes were given in a traditional technique according to the program of sports preparation by the recommended Federation of boxing of the Russian Federation [19]. In EG improvement of sports skill was carried out on the basis of formation of skills of extrapolation and afferent synthesis of motive actions. For formation of ability to extrapolation of motor acts the system of the tasks directed on consolidation of skills of an independent choice of effective options of attacking kick in different situations of a boxing match was used. Boxers of EG were offered to define expediency of performance of a single and serial direct strike, long and short, strong or weak depending on a situation or a goal (for example, for stoppage, failure of attack of the opponent or initiative intercept; preparation, the beginnings, developments, completion of own attack and an exit from it).

For formation of skills of afferent synthesis of motive actions in EG systematic activities for formation of socially significant motivation on the basis of its other types were carried out: internal, external and socially oriented, and also improvement of mechanical, logical, motive, long-term and short-term memory by means of special motive and intellectual tasks (for example to establish rational quantity and a combination of different types of protective receptions; to call options of performance of a direct strike in the head and a trunk; to list features of performance of kick left from below in a trunk the winner of tournament, etc.). Formation of skills of use information was carried out taking into account its following revealed by us, structural components: ring arrangements at competitions; reactions of spectators during fight; degrees of

objectivity of refereeing; adequacy of reaction of the boxer on actions of the opponent.

The maintenance of a technique of consolidation of these skills provided:

- Carrying out educational fights and sparring at various arrangement of a ring;
- Formation of skills of management by a psycho-emotional state for the purpose of derivation from noise of fans; mobilization of the psychological and physical efforts for achievement of an objective at biased refereeing;
- Improvement of ability to the objective analysis and the assessment of actions of the opponent causing an adequate choice of option of counterattack, allowing to neutralize the program of the opponent.

Starting information is submitted by the following structural components:

- Single starting signal;
- The situation caused by merges of starting information;
- repeated undertaking attack;
- Attack at deficiency of time.

The technique of formation of skills of use of starting information provided timely response to a starting signal; variability of performance of a technique that increases possibility of use of a way of an attack unfamiliar for the opponent; performance of effective actions at considerable deficiency of time that promotes formation of skills of an advancing of actions of the opponent.

After the end of pedagogical experiment repeated testing of level of physical readiness and competitive activity for the purpose of detection of nature of dynamics of studied indicators was held. The analysis of the obtained data testifies to improvement of results in both groups: The KG and EG, however, at boxers of EG character of a gain of results was more considerable. So, in run on 30 m at basic data 5.53 ± 0.42 with to completion of pedagogical experiment indicators improved for 1.48% ($p>0.05$); in EG, respectively, at basic data 5.55 ± 0.39 with to the end of pedagogical experiment improvement of results made 3.11% ($p>0.05$). In a long jump from a place in KG at basic data of 193.5 ± 16.8 cm to completion of pedagogical experiment indicators increased by 5.36% ($p>0.05$); in EG, respectively, at basic data of 194.7 ± 15.4 cm the gain of results made 12.6% ($p<0.05$). The similar tendency of improvement of indicators in EG was revealed and according to other tests.

The analysis of results of competitive activity also testifies to increase of its efficiency. So, in KG at basic data of a ratio of exact shock actions and the passed attacks during one round – 7:9, to completion of pedagogical experiment indicators

changed and made 9:6; in EG, respectively, at basic data of 6:8 shock actions to completion of pedagogical experiment the ratio made 14:5. In KG at initial indicators of number of used protective receptions at each attacking action from 5 to 7, to completion of pedagogical experiment their number changed ranging from 8 to 9; respectively, at basic data from 5 to 8 protective receptions to completion of pedagogical experiment indicators increased in EG and made from 12 to 17 receptions.

Conclusions

Thus, results of pedagogical experiment showed efficiency of the approach offered by us to improvement of system of sports preparation on the basis of formation of skills of extrapolation and afferent synthesis of motive actions. The support on these physiological bases allows using the potential of the athlete more fully. Thanks to skills of extrapolation of motive actions, athletes from a large number of bringing and preparatory exercises acquire the most effective, having structural similarity to the main competitive receptions. Skills of afferent synthesis of motive actions create conditions for a support on the motivational sphere which rational management allows to stimulate informative and physical activity more effectively; to develop the different types of memory adding to competitive experience of athletes.

Skills of use of starting information provide readiness for productive competitive activity in unusual conditions, aggressive reaction of spectators, at biased refereeing, developing ability to timely response to a single starting signal; to effective actions in a situation of merge of starting information; and also at deficiency of time.

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