

## PSYCHOPHYSIOLOGICAL STATES AND SPECIAL PERFORMANCE OF BOXERS WITH DIFFERENT STYLES OF FIGHT

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**Annotation.** *Purpose:* The style of the fight is one of the important factors that affect the quality of the arts in boxing. Particularly important factor in the modern boxing are the mental processes that are involved in forecasting and analyzing the situation that arises in the ring and are associated with cognitive functions. *Purpose* - to examine the psychophysiological state and a special performance for skilled boxers with different styles of input match. *Material:* 22 highly qualification boxer aged 18-23 years were studies. The absolute and the relative strength of serial and single strikes were studied. Definition of special performance and power strokes performed on a special simulator. Recorded the absolute and relative strength of serial and single strikes. *Results:* The results show that the attacking style of the fight in boxing is accompanied by the presence of a high level of efficiency, reduction of fatigue, anxiety, and depending on the condition of vegetative functions. Showed a reduction in the growth of autonomy and heteronomy in the structure of psycho-physiological state of boxers with the attacking style of the fight, which indicates the presence of compromise and avoidance of external failures. *Conclusions:* Boxers with attacking style of fight characterized by high values of the left side impact forces and reduce the values of the right direct strike force, compared with boxers protective style of fight.

**Keywords:** boxing, psychological, special, performance, forecast.

### Introduction

Progress of boxing as Olympic kind of sports is connected with demand in demonstration of different qualities, which ensure effectiveness of competition functioning [1,2]. One of the most important factors, which influence on quality of duel in boxing, is boxing style. Prevailing majority of specialists think that boxing style is individual for every boxer [3,4].

In modern boxing especially important factor is sportsman's ability to take optimal and adequate decisions in conditions of duel. Psychic processes, which participate in prognostication and analysis of ring situation, are connected with cognitive functions [5,6].

Analysis of scientific literature witnesses that problem of boxers' psycho-physiological status and cognitive functions' manifestation has been studied insufficiently. Psycho-physiological status is a reflection of psychological, individual-typological and functional properties, which influence on boxing style [7,8].

They think that the most lucky variant for a boxer is ability to combine different boxing styles [9,10,11]. Determination of boxer's bent to certain boxing style is an urgent problem as far as style of functioning, as a rule, is manifested at stage of maximal realization of sportsman's potentials; though for increasing of effectiveness of boxers' training, boxers' bent to certain style is determined at all stages of trainings [12,13]. For this purpose it is necessary to use indicators, which would be sufficiently informative and would not require long time for their mastering and would not change in their ontogeny. In connection with above mentioned it is urgent to conduct research of psycho-physiological characteristics, which have individual-typological origin, as well as special workability of boxers with different boxing styles.

### Purpose, tasks of the work, material and methods

*The purpose of the work* is to analyze psycho-physiological status and special workability of qualified boxers with different boxing styles.

#### *Materials and methods of the research*

22 highly qualified boxers of 18-23 years old age took part in our researches. Testing was fulfilled with the help of programmed psycho-diagnostic complex "Multi-psycho-meter-05".

Psycho-physiological status was tested with 8-color variant of Lucher's test in modification of L. Sobchik (method of coupled comparisons). We determined indicators of workability, tiredness, anxiety, eccentricity, concentricity, vegetative coefficient, autonomy, heteronomy.

Cognitive functions, as components of psycho-physiological status, in particular attention, perception and thinking, were registered with test "registration of regularities". We evaluated quickness and accuracy of recognition of word, coded by signos' sequence, among 25 variants with 5 attempts of choice.

Special workability was determined by power of blows on special simulator. We registered absolute and relative strength, serial, single and double blows.

### Results of testing and their discussion

For estimation of psycho-physiological status and cognitive functions all boxers were divided into two groups by their boxing styles. With questioning we determined two main boxing styles: attacking and defensive. "Attacking" group consisted of 10 persons and "defensive" group – 12 boxers. In table. 1 we present results of Lucher's test of different styles' boxers.

Table 1

*Mean values of digital Lucher test's indicators of different styles' boxers (n=22)*

Indicators	Boxing styles	
	Attacking (n=10)	Defensive (n=12)
Workability	10.90±0.76	9.16±0.60*
Tiredness	2.00±0.81	2.66±0.74
Anxiety	1.00±0.51	2.25±0.52
Eccentricity	8.50±0.96	7.91±0.86
Concentricity	9.00±0.84	8.41±0.71
Vegetative coefficient	14.30±1.68	16.50±1.09
Geteronomy	7.90±0.60	6.00±0.42*
Autonomy	9.60±0.45	10.33±0.43

Notes: \* -  $p < 0.05$ , comparing with "attacking" style's sportsmen.

Analysis of table 1 data witnesses about presence of difference by certain indicators of digital Lucher's test. Workability indicator shows trend to increasing for "attacking" style's boxers. Besides, we detected confidently higher values of "attacking" style's boxers' geteronomy.

The obtained result reflects fact of presence, on the one hand, of "attacking" style's boxers' higher workability, comparing with "defensive" style's boxers and, on the other hand, dependence on external influences. It is proved by unconfidently lower indicator of autonomy of "attacking" style's boxers (see table 1). Though it is compensated by lower indicators of tiredness, anxiety and vegetative coefficient (see table 1).

Thus, boxers, who prefer attacking style in combat conditions, have higher level of workability, lower tiredness, anxiety and dependence on vegetative functions' state.

However, reduced autonomy and increasing of geteronomy in psychology structure of boxers with attacking boxing style, show their willingness to compromise and avoiding of failures. We can say about presence of compensatory characteristics for formation of psychological status in competition's conditions.

In table 2 we provide indicators of test "registration of regularities" (cognitive functions) of different boxing styles' boxers.

Table 2

*Mean values of test "registration of regularities" of different boxing styles' boxers. (n=22)*

Indicators	Boxing styles	
	Attacking	Defensive
Efficiency	16.70±0.66	20.41±0.84*
Quickness, sec.	3.93±0.07	4.75±0.04*
Accuracy	0.77±0.04	0.83±0.03*
Effectiveness	48.60±5.23	66.75±5.32*

Notes: \* -  $p < 0.05$ , comparing with "attacking" style's sportsmen.

Analysis of table 2 data witnessed that attacking and defensive styles' boxers differ by indicators of efficiency and effectiveness of determination of holistic object. With it, attacking style's boxers have lower efficiency and effectiveness than boxers of defensive style (see table 2). However, by quickness and accuracy indicators attacking style's boxers have better quickness (less response time) and better accuracy (less quantity of error responses). In table 3 we give values of relative power of blows (in respect to body mass) of different boxing styles' boxers.

Results of table 3 witness about absence of confident difference between different boxing styles' boxers.

Table 3

*Mean values of relative power of blows of different boxing styles' boxers. (n=22)*

Blows, indicators	Boxing styles, conv.un	
	Attacking	Defensive
Left side	2.85±0.04	2.12±0.03*
Right straight	2.34±0.03	2.84±0.05*

Notes: \* -  $p < 0.05$ , comparing with "attacking" style's sportsmen.

As per table 3, we detected that attacking style's boxers have confidently higher indicators of relative strength of left side blow, comparing with defensive style's boxers.

At the same time attacking style's boxers have strength of right straight blow confidently lower than defensive style's boxers (see table 3).

It should be noted that for attacking style boxers left side blow is the most optimal, while boxers of defensive style have better characteristics of right straight blow. This fact reflects bigger percentage of actions of attacking style's boxers.

Thus, attacking style's boxers are characterized by high quickness and processing of information. However, increasing of their quickness characteristics is connected with worsening of cognitive functions: effectiveness and

efficiency of processing of information. It was registered that for attacking style's boxers left side blow prevails, while for defensive style's boxers – right straight.

#### **Conclusions:**

1. Attacking style of boxing is accompanied by high workability, low tiredness, anxiety and dependence on vegetative functions.
2. Reduction of autonomy and increasing of heteronomy in psycho-physiological status of attacking boxing style's boxers point at presence of willingness to compromise and avoiding of failures.
3. Attacking style's boxers are characterized by stronger left side blow and reduced power of right straight blow, comparing with boxers of defensive boxing style.
4. Increasing of boxers' quickness is connected with worsening of cognitive functions: effectiveness and efficiency of processing of information.

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