

# The Level of use of Technical and Tactical Elements in Boxing Based on the Analysis of the 15th B&H Individual Boxing Championship

Key words: **dodging, aberrations, technique, knockout.**  
Ključne riječi: **eskivaža, kategorije, tehnika, nokaut**

## Abstract

A research has been conducted on a sample of 80 competitors in 40 fights. The objective of this research was to determine the level of use of technical and tactical elements in boxing based on situational efficiency of boxers participating in the "15th B&H INDIVIDUAL BOXING CHAMPIONSHIP BANOVIĆI 2007". Based on video records, an analysis of fights was conducted, using twenty five variables. The collected data were processed using descriptive statistics and shown in frequency and percentage values. The research results showed equal use of direct and hook punches and more frequent use of advanced than basic defensive techniques in boxing during the competition of boxers. Achieved results may contribute to better understanding of monitoring and analysis of situational efficiency parameters in boxing at all competition levels.

## Sažetak

**Zastupljenost tehničko – taktičkih elemenata u boksu na osnovu analize „xv pojedinačnog prvenstva BiH u boksu“**

Istraživanje je sprovedeno na uzorku od 80 takmičara u 40 borbi. Cilj ovog istraživanja je utvrđivanje zastupljenosti tehničko – taktičkih elemenata u boksu na osnovu situacijske efikasnosti boksera XV POJEDINAČNOG PRVENSTVA BIH U BOKSU BANOVIĆI 2007. Na osnovu video zapisa izvršena je analiza borbi uz pomoć dvadeset šest varijabli. Prikupljeni podaci su se obradili deskriptivnom statistikom, izraženi u frekvencijama i procentualnim vrijednostima. Rezultati istraživanja pokazali su ujednačenu primjenu direktnih i kroše udaraca, te veću primjenu naprednih od osnovnih odbrana u boksu tokom takmičarske aktivnosti boksera. Dobijeni rezultati mogu doprinijeti boljem razumjevanju praćenja i analiziranja parametara situacijske efikasnosti u boksu na svim nivoima takmičenja.

## Introduction

It is unnecessary to emphasize how important it is to prepare organism for exposure to a large strain in sport. In any kinesiological activity, including boxing, the organism is exposed to a specific strain. The magnitude of this strain will depend on many factors, such as mastering the technique, condition training, psychological training, and most of all the knowledge about the opponent we are fighting against (Milanović, 1999). In the same way, fighters with a larger motive to achieve success in sport will be exposed to different strains (Shim, 2003). If a sportsman is being prepared using modern training methods, and especially if he masters well the defence tactics and techniques, in that case there will be no undesired punches or they will be reduced to a minimum. The sports life of a boxer is not long enough to allow him to thoroughly master every move and to learn everything that is necessary about boxing. Once he learns everything he needs to know about this martial art, it is time for him to withdraw from the ring, and his chances to win the world championship are very small (Bonacin, 2006). The structural analysis of the boxing technique should indicate to specific characteristics of motor movements in this sport (Liao, & Lui, 2003). This covers the analysis of a phase of each individual technique, the importance of these phases for overall efficiency of the technique and conditions that ensure such efficiency.

A large number of techniques in boxing make the structural analysis of each individual technique impossible, due to a limited scope, and this research will therefore analyze only the basic groups of techniques. Most previous research papers in the field of boxing and other martial arts K-1, karate, judo (Hassell, 1984; Kapo, 2006, Kajmović et al., 2007) were published from the aspect of morphological characteristics and motor knowledge

and presented as a complex multidimensional research. Special attention must be paid to the following papers, published by the authors (Kapo, 2006) who were researching the impact of basic motor abilities on the efficiency of technique and tactics performance in karate on a sample of 60 karate fighters using 21 basic motor tests and three situational motor tests in karate. Research results clearly show that basic motor abilities have large and significant impact on the efficiency of karate technique and tactics performance, where variables of coordination with the stick (MCWS), foot tapping against a wall (MFTAW) have the dominant role, and can therefore be used for the selective purposes.

On a sample of eight first-rate K-1 fighters from Southeast Europe, who participated in K-1 tournament "KING OF THE COLOSSEUM" SARAJEVO 2002 (Kapo et al. 2004.) were researching a certain technique-tactic elements in martial arts existing even in K-1. Research results showed the dominance in Boxing and Muay thai, based on the statistical share of punches from these martial arts that were applied during competition activities in K-1 sport.

Research conducted on a sample of 43 competitors, in 31 fights and 116 analyzed rounds of all weight classes, from fourteen countries participating in the 9<sup>th</sup> "HAKIJA TURAJLIĆ" INTERNATIONAL MEMORIAL BOXING TOURNAMENT", Sarajevo 2003, (Kapo et al., 2005) divided into the lightweight class (48-57 kg), middleweight (57-71 kg) and heavyweight (over 71 kg) with the purpose to determine an influence due to change of rules in boxing and dominance of technique – tactics elements during the fight. Research results showed the dominance of hook punches concerning other arm punches in boxing what was exactly contributed by rules changing i.e decreasing time duration of the fight from three to two minutes per round where the largest frequency of punches was in heavyweight and lightweight classes (over 71 kg) and (48-57 kg).

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The hypothetical model of periodisation in karate (Kafedić et al., 2005) of a one-year cycle of preparation of first-rank karate fighters from the "Bušido" Karate Club was applied in this research. The results achieved best show the value and efficiency of the one-year cycle of karate fighters' preparation. The results achieved by karate fighters of the "Bušido" Karate Club from Sarajevo, Arnela Odžaković and Adnan Beširević, who worked on the basis of the shown periodisation model in a one-year cycle of preparation, may confirm its value and effectiveness, and therefore the efficient application in training of the first-rank karate fighters. Research objective was to determine the level of use of technical and tactical elements in boxing, based on the situational efficiency of boxers, participants of the "15<sup>th</sup> B&H INDIVIDUAL BOXING CHAMPIONSHIP, BANOVICI 2007".

## Methods

### Sample of the examined

Sample comprised of 80 first-rank competitors from Bosnia and Herzegovina.

### Sample of variables

The total number of variables for this research was 25, in order for the presence of technical and tactical elements during forty fights to be analysed in as much detail as possible.

Data were collected on the basis of video records of forty fights, based on which the analysis was performed by qualified experts in that field making the special protocols for monitoring sport activities with the analyze of all parameters which specified this collection.

### Data processing methods

Collected data were processed by descriptive statistics, and expressed in frequency and percentage values, which was all supported by graphical display. Variables were processed on the

basis of the equation of efficiency of application of technical and tactical elements in boxing fights.

$$\text{Box} = x / N_y \cdot 100 \%$$

Where:

Box = Overall level of use in the boxing tournament

x = Number of successfully performed technical and tactical elements,

N<sub>y</sub> = Total number of successfully performed technical and tactical elements,

The above mentioned equation allows fast calculation of the use a certain technique and tactics during the attack and defence in boxing.

## Results and Discussion

### Analysis of the use of punches in boxing

Table 2 and graph 2 show that punches with the left and right hand demonstrate dominance that is most pronounced with the left direct punch to the head with frequency of 1890 or 28.9 % and right direct punch with the frequency of 1011 or 15.5% of the total number of techniques applied with left and right hand at this tournament. The second most frequently used punch is left (front) hook to the head with the frequency of 1514 or 23.2 % and right hook to the head with the frequency of 1277 or 19.5%. This data tells us that fights were very dynamic, and that half-distance fighting and clinching were dominant, therefore the direct punches, without which the modern boxing cannot be imagined, were used frequently, as well as hooks which are the most natural and some of the strongest punches in boxing. Punches with the smallest frequency of use were uppercuts, especially those to the head, with the frequency of left hand of 28 or 0.4 % and right hand of 106 or 1.6%. Data show that although a large number of punches was exchanged in a half-distance fighting and in clinch, we have a very small percentage of use of uppercuts, which leads us to conclude that fighters did not adequately master the boxing techniques, since we know that the uppercut is one of the most complex punches in boxing, and that can immediately be concluded on the basis of the results achieved. The table and

**Table 1.**

*Variables of technical and tactical elements in boxing*

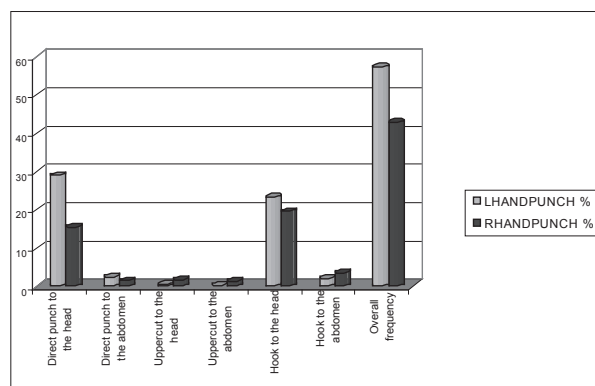
HAND PUNCHES						BASIC DEFENCE AGAINST HAND PUNCH			ADVANCED DEFENCE AGAINST HAND PUNCH			
V.1	V.2	V.3	V.4	V.5	V.6	V.7	V.8	V.9	V.10	V.11	V.12	
Direct punch to the head	Direct punch to the abdomen	Uppercut to the head	Uppercut to the head	Hook to the head	Hook to the abdomen	Blocking with the arms against direct punches	Blocking with the arms against hooks	Blocking with the arms against uppercuts	Dodging	Slipping	Aberration	
L D	L D	L D	L D	L D	L D	L D	L D	L D				
APPLICATION OF TACTICS			KNOCKOUT TECHNIQUE			NUMBER OF KNOCKOUTS	MANNER OF WINNING			INJURY		
V.13	V.14	V.15	V.16	V.17	V.18	V.19	V.20	V.21	V.22	V.23	V.24	V.25
Offensive	Defensive	Combined	Direct punch	Hook	Uppercut	Number of knockouts in a match	By knockout	By decision of referees	Resignation due to injury	Arm	Torso	Head
			L D	L D	L D					L D		

graph below clearly show that the frequency of punches to the torso is much smaller than the frequency of punches to the head. Significant difference in the frequency between left and right hand is also visible (for left hand it is 3737 or 57.2%, while for the right hand it is 2800 or 42.8 %), which tells us about importance of the left hand in fighting and preparation for the final punch with the right hand.

**Table 2.**  
*Analysis of use of hand punches to the head and torso in boxing*

PUNCHES	LHANDPUNCH	%	RHANDPUNCH	%
Direct punch to the head	1890	28,9	1011	15,5
Direct punch to the abdomen	158	2,4	94	1,4
Uppercut to the head	28	0,4	106	1,6
Uppercut to the abdomen	19	0,3	86	1,3
Hook to the head	1514	23,2	1277	19,5
Hook to the abdomen	128	2	226	3,5
Overall frequency	3737	57,2	2800	42,8

**Graph 2.**  
*Analysis of use of hand punches to the head and torso in boxing*

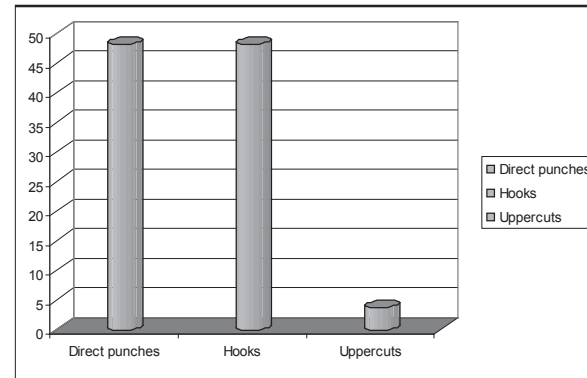


Overall level of use of hand punches in boxing (table 2.a. and graph 2.a.) during the analysed "15th B&H INDIVIDUAL BOXING CHAMPIONSHIP, BANOVIĆI 2007" is to a large extent the same with regard to direct punches (3153 or 48.2 %) and hook punches (3145 or 48.1 %), while the uppercut punches were much less frequently used (239 or 3.7 %). The results indicate that the change in the rules contributed to a larger frequency of hook punches, due to their technical characteristics which became pronounced during dynamic fights and reduced distance between fighters, which finally resulted in this score when application of punches is concerned.

**Table 2.a.**  
*Analysis of application of hand punches in boxing*

PUNCHES	FREQUENCY	%
Direct punches	3153	48.2
Hooks	3145	48.1
Uppercuts	239	3.7

**Graph 2.a.**  
*Analysis of application of hand punches in boxing*



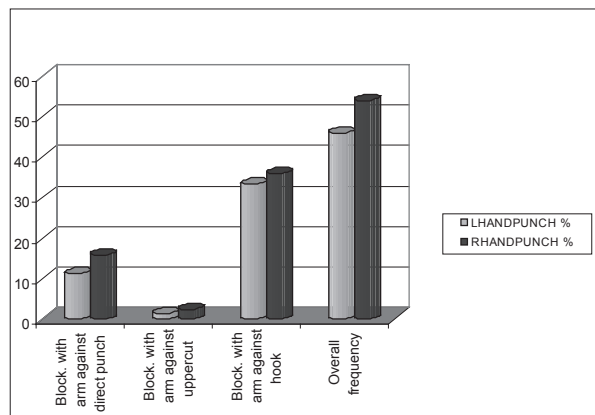
### Analysis of use of basic defence against hand punches in boxing

Table 3 and graph 3 show that the most used basic defence technique is blocking with arm against hook. Blocking with right arm was used 224 times, which is 35.9 %, and blocking with left arm was used 207 times, which is 33.2 %. The second most used defence technique is blocking with arm against direct punches, where blocking with right arm again has larger frequency, 99 or 15.9 %, compared to blocking with left arm which amounted to 70 or 11.2 %. As it can be seen, blocking with arm against uppercuts was used with smallest frequency, which is understandable since this type of punches had smallest use at the tournament. Generally, it may be concluded that right arm is more used for basic defence in boxing, with the frequency of 338 or 54.2 %, while left arm has frequency of 286 or 45.8 % in the total number of applied basic blocking techniques in boxing. This shows that left arm was more used, and was much more active in fight, which resulted in larger frequency of blocks with right arm.

**Table 3.**  
*Analysis of use basic defence against hand punches in boxing*

BASIC DEFENCE	LHANDPUNCH	%	RHANDPUNCH	%
Block. with arm against direct punch	70	11.2	99	15.9
Block. with arm against uppercut	9	1.4	15	2.4
Block. with arm against hook	207	33.2	224	35.9
Overall frequency	286	45.8	338	54.2

**Graph 3.**  
Analysis of use basic defence against hand punches in boxing



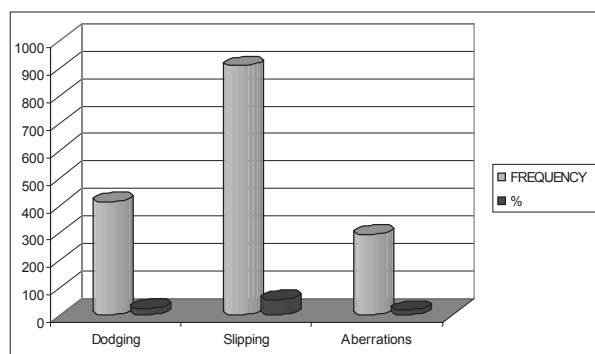
### Analysis of use of advanced defence against hand punches in boxing

Table 4 and graph 4 show much larger use of advanced defence in relation to the basic defence, which tells us that the fighters who participated in this state championship to a large extent mastered the advanced defence techniques as well. It can be seen that the most frequently used advanced techniques were slipping with the frequency of 909 or 56.2 %, then dodging with the frequency of 412 or 25.5 % and aberrations with frequency of 295 or 18.3 %, which is understandable if we take into account that direct punches and hooks were most frequent punches during this competition. These data also indicate that competitors who participated in this state championship were well trained, in technical terms, and that they used advanced body defence techniques.

**Table 4.**  
Analysis of use of advanced defence against hand punches in boxing

ADVANCED TECHNIQUES	FREQUENCY	%
Dodging	412	25.5
Slipping	909	56.2
Aberrations	295	18.3

**Graph 4.**  
Analysis of use of advanced defence against hand punches in boxing



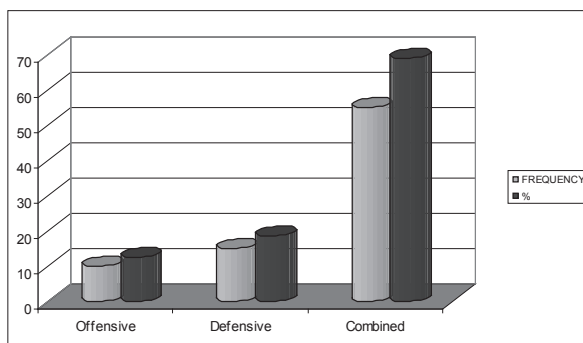
### Analysis of use of tactical elements in boxing

Table 5 and graph 5 show that most dominantly used element was combined tactics with the frequency of 55 or 68.8 %, then defensive tactics with the frequency of 15 or 18.7 % and finally offensive tactics with the frequency of 10 or 12.5 %. Percentage values for applied tactics at this B&H state championship tell us that the fighters were well prepared in terms of tactics, which is confirmed by the obtained indicators that the largest number of fighters successfully used combined tactics. Smaller group of competitors applied also the defensive tactics, which was most probably caused by the fact that they were not well prepared in terms of condition, which resulted in application of this tactics. The least applied was the offensive tactics, most probably because the competitors were cautiously entering into the fight, since they were not well prepared in terms of condition, and because of larger exchange of punches, which was result of new rules where fighters were in constant exchange, and combined tactics became pronounced.

**Table 5.**  
Application of tactical elements during completion

Application of tactics	FREQUENCY	%
Offensive	10	12.5
Defensive	15	18.7
Combined	55	68.8

**Graph 5.**  
Application of tactical elements during completion



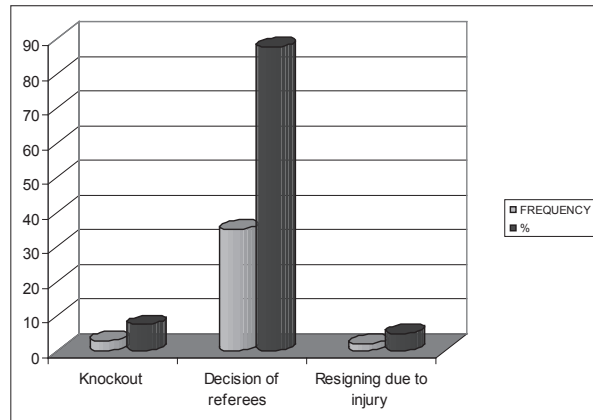
### Analysis of the ways of winning during boxing competitions

Table 6 and graph 6 show that the largest number of wins during the analysed "15th B&H INDIVIDUAL BOXING CHAMPIONSHIP, BANOVIĆI 2007" was achieved by the decision of referees, which indicates that the participants of B&H state championship in boxing were rather equal, which resulted in the fact that largest number of fights was ended by the decision of referees, with the frequency of 35 or 87.5 %. Three fights ended before the regular match time was over, while two fights ended by forfeiting of competitors due to injury.

**Table 6.**  
Aanalysis of the ways of wining during boxing competitions

Way of winning	FREQUENCY	%
Knockout	3	7.5
Decision of referees	35	87.5
Resigning due to injury	2	5

**Graph 6.**  
Aanalysis of the ways of wining during boxing competitions



## Conclusion

Based on the results obtained through analysis of the "15th B&H INDIVIDUAL CHAMPIONSHIP IN BOXING, BANOVIĆI 2007", we may conclude that the most used punches at this championship were direct punches with the frequency of 3153 or 48.2 %, most probably because of the advantage they give in terms of speed, and easy and precise performance and use of these punches, where the possibility for injury is smallest as well as the energy expenditure. The second most used punch was hook punch with the frequency of 3145 or 48.1 %, most probably because hook is one of the most natural ways of punching. These are the punches moving around the imaginary axis of our body, and punches that provide largest precision, and they are performed during a half-distance fighting. Uppercuts were the least used punches at this state championship, with the frequency of 239 or 3.7 %, which is most probably because these are, in technical terms, most requiring punches in boxing, which demand long period of technical improvement and years of experience in competition. With regard to the use of basic defence against hand punches, most frequently used was defence against hook, with the frequency of 431 or 68.8 %, then against direct punches, with the frequency of 169 or 26.8 %, while the least used defence was technique of defence against uppercut, with the frequency of 24 or 3.8 %, which was logical if we take into consideration the use of the above mentioned techniques during competition.

The analysis of the use of advanced defence against hand punches in boxing, indicates to a much larger frequency of advanced techniques in relation to the basic techniques, which tells us that the fighters who participated in this championship to a large extent mastered the advanced defence techniques. It may be seen that the most frequently used advanced technique was slipping, with the frequency of 909 or 56.2 %, then dodging, with

the frequency of 412 or 25.5 %, and aberrations with frequency of 295 or 18.3 %, which is understandable considering that direct punches and hooks actually were the most frequent punches during competition. These data also indicated that competitors participating in this B&H state championship were well trained in terms of technique, and they used the advanced body defence techniques very well.

All of the above mentioned facts lead to the conclusion that change of the boxing rules significantly influenced the fight and use of technical, and therefore the tactical elements in boxing as well. Shortening of the round from 3x3, to 4x2, resulted in a greater level of dynamics and combativeness of boxers, which caused a larger change in technical elements during half-distance fighting and clinching, and this resulted in application of a larger number of hooks and techniques of defence, both basic and advanced, against hooks.

Very small percentage of use of uppercuts during this tournament tells us that fighters were not fully trained, in terms of technique, since we know that the uppercut is most complex punch in boxing, which requires long period of training and a lot of work on perfecting this blow. This was reflected in a larger use of direct and hook punches, which required more training with regard to condition, due to incomplete technical level of preparation, and this all impacted the application of tactics at the championship held in Bosnia and Herzegovina.

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