Baltic Journal of Health and Physical Activity

Volume 5
Issue 4 *12/31/2013*

Article 3

2013

Characteristics of technical-tactical preparation of Russian men's judo representation during the Olympic Games in London in 2012

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Recommended Citation

Adam M, Wolska B, Klimowicz P et al. Characteristics of technical-tactical preparation of Russian men's judo representation during the Olympic Games in London in 2012. Balt J Health Phys Act. 2013; 5(4): 2449-260. doi: 10.2478/bjha-2013-0023

VERSITA
BALTIC JOURNAL OF HEALTH AND PHYSICAL ACTIVITY
© Gdansk University of Physical Education and Sport in Gdansk, Vol. 5, No. 4, 2013, 249-260
ORIGINAL ARTICLE
DOI: 10.2478/bjha-2013-0023

Characteristics of technical-tactical preparation of Russian men's judo representation during the Olympic Games in London in 2012

Authors' Contribution:
A – Study Design
B – Data Collection
C – Statistical Analysis
D – Data Interpretation
E – Manuscript Preparation
F – Literature Search
G – Funds Collection

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Key words: *preparation indices, efficiency of fight, Russian representatives.*

Abstract

Background: *The aim of the study was to determine the value of indices of tactical and technical preparation (PTT) of Russian judo athletes during the Olympic Games in London. The values of these indices may designate the direction of activity in the process of special preparation and in the search for factors to optimize training before the main competitions.*

Material/Methods: *During the Olympic Games in London in 2012, Russian judo representatives fought 31 fights. A multiple analysis of video footage and graphic registration allowed marking 423 technical attacks (including 24 efficient attacks) of the representatives of Russia and 384 attacks (including 5 efficient attacks) performed by their opponents in these competitions. On the basis of the classification of judo techniques developed by Kodokan Judo, an assessment of the effectiveness of particular groups of techniques has been made. The most commonly used technique and the dominant techniques used by the observed athletes have been distinguished. Indices of tactical and technical preparation have enabled the identification of characteristic features of preparation of the representatives of Russia and of their opponents during the Olympic Games in London in 2012.*

Results: *Russian athletes were characterized by high efficiency of techniques from the grappling group. The dominant techniques were: varieties of the broken scarf hold (*kesa gatame kuzure*), back-lying perpendicular armbar (*ude hishigi juji gatame*), sweeping hip throw (*harai goshi*) and the sacrifice throw "valley drop" (*tani otoshi*). Athletes were characterized by stable efficiency of techniques from all the groups of throws and with 100% efficiency of defence in ground fighting. Russian competitors were far superior to their opponents in the efficiency of the ways and directions of performing throws (Ea - WP, NP, F, B). They retained a positive index of activity (A = +1.162). The advantage of values of the determined indices of tactical and technical preparation among representatives of Russia over their opponents in the Olympic Games in London was commensurate with the obtained results.*

Conclusions: *The efficiency of Russian athletes during the OG in London was confirmed by the values of the indices by which tactical and technical preparation was evaluated. The analysis of indices allowed characterizing features specific to Russian representatives.*

Word count: 4,040
Tables: 5
Figures: 10
References: 23

Received: May 2013
Accepted: December 2013
Published: December 2013

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Introduction

The Olympic Games are the biggest sporting challenge facing athletes and training staff. To qualify for participation in the Olympics in London in 2012, an athlete had to win qualifying tournaments, which had been held from May 2010 until April 2012 (www.ijf.com). Extensive and difficult selections allowed distinguishing the most efficient competitors. In the competition of male representations, the dominant teams included: Japan, Korea, France and Russia [1]. Each of these teams qualified as a whole to the Olympic Games (one athlete in each of the seven weight categories). Results of the Olympic competition were surprising, and the order of results was reverse to the ones obtained during the qualifiers. Russian athletes achieved the greatest sports success and won three gold medals, one silver medal, one bronze medal and one fifth place. Representatives of Korea won two gold medals, one bronze one and took three fifth places. During these Olympic Games French athletes received one gold medal, one bronze medal and took one fifth place. Representatives of Japan, who had dominated in the pre-Olympic competition in London, won two silver medals, two bronze medals and one fifth place. What indices of technical-tactical preparation characterised Russian judo representatives during the Olympic Games in London? Which values of indices in these competitions allowed them to gain advantage over their opponents? Answers to these questions allow looking for trends in technical and tactical preparation in modern judo competition and searching for grounds for optimization of the preparation process.

Material and method

233 judo competitors from 109 countries participated in the Olympic Games in London. 423 technical attacks of Russian representatives were registered (including 24 efficient attacks) and 384 attacks (including 5 efficient attacks) performed by their opponents. Fights were recorded using standard audio-video techniques, and then, after a repeated review of each fight by two researchers, each technical element was saved with the help of graphic markings [2]. The used techniques were classified on the basis of Kodokan Judo [3, 4], and the naming and spelling are presented on the basis of the Japanese-English dictionary [5].

The competition efficiency of national teams participating in the Olympic Games in 2012 has been determined on the basis of three criteria [6]:

1. The sum of won medals (gold medals, then silver and bronze ones)
2. The sum of points awarded for the taken place (1st place – 9, 2nd place – 5, 3rd place – 3 m, 5th place – 1 point)
3. The average number of points per representative won during the competition.

Dominant techniques have been determined on the basis of three criteria [7]:

1. The order according to value of the assessed attacks (first – *ippon*, next *waza ari* and *yuko*)
2. The order according to the number of all efficient attacks (which received the judges' assessment)
3. The average number of auxiliary judicial points per one fight (*ippon* = 10 pts., *waza ari* = 7 pts., *yuko* = 5 points) obtained for efficiently performed techniques.

K = K1 + K2 + K3
K1 – the first criterion
K2 – the second criterion
K3 – the third criterion

Determination of efficiency indices

Efficiency indices are defined by analysing judges' points obtained for efficient execution of techniques, calculated per one fight. Calculations are as follows:

Ea = 5 x M + 7 x M + 10 x M/n
Ea – index of the efficiency of attack

5, 7, 10 – point values of efficient attacks (*yuko*, *waza ari*, *ippon*)
M – the number of efficiently executed attacks (assessed by a judge),
n – the number of analysed fights.

Assessment of the efficiency of executing throws in two directions

The way of performing throws and the direction of tilt allows for a simplified breakdown of these techniques into two groups: with breaking the opponent's balance on toes (forward throws) and with breaking the opponent's balance on heels (backward throws).

Forward throws (F) – assuming that during an attack the opponent is unbalanced on the toes. This group consists of the following techniques (both to the right and the left side): *seoi nage, soi otoshi, tai otoshi, uchi mata, oguruma, ashi guruma, hane goshi, harai goshi, ashi guruma, ogoshi, ukigoshi, koshi guruma, tsurikomi goshi, sode tsurikomi goshi, harai makikomi, uchimata makikomi, soto makikomi, hiza guruma, sasae tsurikomi ashi, harai tsurikomi ashi, yoko otoshi, uki waza, tomoe nage, sumi gaeshi, uki otoshi, uchimata sukashi, yoko guruma*.

Backward throws (B) – assuming that during an attack the opponent is unbalanced on the heels. This group consists of the following techniques (both to the right and the left side): *osoto gari, osoto guruma, osoto gaeshi, osoto otoshi, kosoto gari, kosoto gake, kouchi gari, kouchi gake, kouchi makikomi, ouchi gari, ouchi gaeshi, sumi otoshi, ushiro goshi, tani otoshi, waki otoshi, yoko gake*.

Throws whose direction of executions was difficult to define (*okuriashi harai, deashi harai, tsubama gaeshi, ura nage*) have been excluded from the classification into forward or backward throws.

Assessment of the efficiency of throws with and without the pivot of the body

Although the official classification of judo techniques by the Kodokan does not implement such a division, it is hard not to notice that a number of throwing techniques requires turning towards the opponent and performing a full or partial rotation of the body. Predispositions to this type of executing techniques or defence against them are the subject of further analysis.

Throws performed with a pivot (WP), which require turning backwards or sideward to the opponent include: *seoi nage, seoi otoshi, tai otoshi, uchimata, uhimata makikomi, ashi guruma, oguruma, hane goshi, hane makikomi, harai goshi, harai makikomi, ogoshi, uki goshi, koshi guruma, tsurikomi goshi, sode tsurikomi goshi, soto makikomi*.

Throws performed with no pivot (NP), during which a competitor faces the opponent, include: *uki otoshi, sumi otoshi, ushiro goshi, deashi harai, okuriashi harai, tsubama gaeshi, hiza guruma, sasae tsurikomi ashi, harai tsurikomi ashi, osoto gari, osoto guruma, osoto otoshi, osoto gaeshi, ouchi gari, ouchi gari gaeshi, kosoto gari, kosoto gake, nidan kosoto gari, kouchi gari, kouchi gake, kouchi makikomi, tomoe nage, sumi gaeshi, ura nage, yoko otoshi, tani otoshi, uki waza, yoko guruma, yoko gake*.

Observations of fights allow singling out athletes who have trouble with execution of the techniques that require a body pivot. On the other hand, they perform throws not requiring them much more efficiently.

Determination of activity indices

Activity was another analysed index which allows determining differences in the frequency of attacks performed by a competitor or his opponents. The activity index was determined on the basis of the formulae:

Aa = sum A / n
Ad = sum a / n
A = Aa-Ad,
Aa – Activity of attack index

Sum A – the number of the athlete's registered attacks (an attempt to attack was assumed to be an activity that fits into the structure of movement of one of the well-known classification groups – Kodokan Judo and allows specifying the used judo technique).

n – the number of analysed fights
Ad – the activity of defence index (opponents' activity)
Sum a – the number of registered attacks performed by opponents
A – activity index

Determination of efficiency indices

The frequency of efficiently used techniques can be assessed using the following PTT indices. The efficiency of attack and the efficiency of defence have been defined as the ratio between attempts to execute a technique and efficient attacks. While analysing activities in attack and in defence, one must define values of these parameters by using the following formulae:

ea = sum AE / sum AT (x 100%)
ea – the efficiency of attack index,
Sum AE – the sum of efficient attacks by an analysed athlete
Sum AT – the sum of all attacks executed by the analysed athlete (an attempt to attack was assumed to be an activity that fits into the structure of movement of one of the well-known classification groups – Kodokan Judo and allows specifying the used judo technique)
and:
ed = 1 (100%) - sum Ae / sum At (x 100%)
ed – the efficiency of defence index,
1 (100%) – the value of defence before the fight start,
sum Ae – the sum of efficient attacks carried out by opponents of the observed competitor,
sum At – the sum of all attacks carried out by opponents of the observed competitor.

The sports result in judo is not only determined by an ability to efficiently execute throws and grapplings. It can also be determined by judges' penalties for breaching the rules specified by sports regulations. The efficiency of judicial penalties applied during sports competitions was determined just like the efficiency of attack (Ea), substituting the negative values of received judicial penalties in place of efficient attacks:

0 points (reprimand) = 1 shido, -5 pts. = 2 shido, -7 pts. = 3 shido, -10 pts. = 4 shido (*hansoku make*) – disqualification.

Results

During the Olympic Games in London in 2012 the judo representatives of Russia obtained results that allowed them to approach the top teams in the Olympic competition (Tab. 1, 2). Out of 31 fights, the athletes won 26, including 11 scoring ippon (before the end of the regular time) and 9 in the extra time (as in the regular fighting time there was no conclusive result). On the other hand, they lost 5 fights, including one scoring ippon and 1 in extra time. From among 7 Russian athletes, one was eliminated in the first fight (in the 66 kg weight category) losing it in the extra time (5'28"); the remaining six contestants fought five fights each in a time from 18'10" (Arsen Galstyan – the 60 kg category) to 27'54" (Alexander Mikhaylin – the +100 kg category) (Tab. 3).

Most often Russian athletes undertook attempts (attacks) at: foot throws (*ashi waza*) – 66%, hand throws (*te waza*) – 19%, sacrifice throws (sutemi waza) – 9%, and hip throws (*koshi waza*) – 6% (Fig. 1). During the Olympic Games in London they executed 24 efficient attacks using 15 judo techniques. The dominant techniques used by athletes were: back-lying perpendicular armbar (*ude hishigi juji gatame*), a variety of broken scarf hold (*kuzure kesa gatame*), and sweeping hip throw (*harai goshi*), small outer reap (*kosoto gari*) and "valley drop" throws *(tani otoshi*), inner-thigh throw (*uchimata*) and other presented techniques (Tab. 4). Their opponents executed 5 efficient attacks, using 5 throws (Tab. 5).

Both Russian athletes and their opponents most frequently tried to execute the following throws: small inner reap (*kouchi gari*), advanced foot sweep (*deashi harai*) and the body drop throw (*tai otoshi*) (Tab. 4 and 5). The efficiency of throwing techniques (*nage waza*) among Russian athletes was Ea = 4.193, while their opponents had the efficiency of throws Ea= 1.032. The efficiency of grappling techniques (*katame waza*) among Russian athletes was Ea = 1.613, while their oppo-

nents could not efficiently perform any technique from this group (Fig. 2). Representatives of Russia efficiently performed throws from all classification groups of Kodokan Judo techniques. They used foot techniques (*nage waza*) the most efficiently Ea = 1.581; their opponents best rendered techniques from the group of hand throws (*te waza*), whose Ea = 0.548, while they were unable to efficiently execute throws from the hip group (*koshi waza*) (Fig. 3). Throwing techniques were performed both with and without the body pivot, with the predominance of forward techniques (with unbalancing on the toes) (Fig. 4 and 5). Grappling techniques (*katame waza*) were performed by Russian athletes with similar efficiency: pinning techniques (*osaekomi waza*) and joint locking techniques (*kansetsu waza*) Sa = 0.645, strangling techniques (*shime waza*) Ea = 0.323 (Fig. 6).

The frequency of attacks undertaken by the representatives of Russia was higher than of the athletes with whom they competed in the Olympic Games in London and was A = +1.165 (Fig. 7). They were characterized by low efficiency of attack (Ea =7.363%) and high efficiency of defence (Ed = 98.701%) (Fig. 8). Most frequently the athletes were reprimanded by judges (*shido* x 1) for passivity in fight and for incorrect avoidance of grapplings (Fig. 9). Opponents of Russian athletes received eight penalties of losing points for a passive fighting style: five times the penalty of 2x *shido*, twice 3x *shido* and once a penalty of disqualification 4x *shido* = *hansoku make*). The Russians were punished with losing points twice, once for a passive fighting style (3x *shido*) and once for leaving the battlefield (2x *shido*) (Fig. 10).

Tab.1 Medal ranking of men's judo representations in the Olympic Games 1964-2012

Place	Representation	Golden medals	Silver medals	Bronze medals	Total
1	Japan	26	9	10	45
2	Korea	9	12	10	31
3	France	7	5	16	28
4	USSR*	5	5	13	23
5	Holland	4	0	9	13
6	Russia*	3	3	4	10
7	Poland	3	2	2	7

* The USSR representation started in years 1964-1991, Russian representation in years 1996-2012

Tab. 2. The efficiency of men's representations (on the basis of the K ranking in the World Championships and the Olympic Games in 2008-2012)

Ranking K	1	2	3	4	5
K1-K2-K3	2-1-3	1-2-4	3-3-5	4-4-8	4-5-8
Olympic Games 2008	KOR	JPN	AZE	GEO	MGL
Ranking K	1	2	3	3	5
K1-K2-K3	1-1-1	2-2-2	3-3-4	3-3-4	3-5-6
World Championships 2009	KOR	RUS	UKR	KAZ	MGL-FRA
Ranking K	1	2	3	4	5
K1-K2-K3	1-1-1	2-2-4	4-3-6	4-7-2	3-4-7
World Championships 2010	JPN	FRA	UZB	GRE	KOR
Ranking K	1	2	3	4	5
K1-K2-K3	1-1-1	2-2-4	2-3-5	4-4-6	6-6-2
World Championships 2011	JPN	KOR	RUS	FRA	GRE
Ranking K	1	2	3	4	5
K1-K2-K3	1-1-1	2-2-2	5-3-4	3-4-6	6-5-7
Olympic Games 2012	RUS	KOR	JPN	FRA	GER

Tab. 3. Successive fights of Russian representatives during the Olympic Games in London in 2012

Fight No	*Successive fights and opponents of Galstyan Arsen (cat. 60 kg), who won the 1st place*			
	Opponent's surname and name	Country	Fight result	Fight time
1	Gourouza Zakari	NIG	1:0 (10:0)	*0'55"*
2	Siccardi Yann	MON	1:0 (10:0)	*1'27"*
3	Choi Gwang-Hyeon	KOR	(0:0) 1:0 (1:0)	*8'00"*
4	Sobirov Rishod	UZB	(0:0) 1:0 (7:0)	*7'08"*
5	Hiraoka Hiroaki	JPN	1:0 (10:0)	*0'40"*
Total time of Galstyn's fights during the Olympic Games in London in 2012				*18'10"*
Fight No	*Fight and opponent of Mogushkov Musa (cat. 66 kg), who lost in the 1st fight*			
	Opponent's surname and name	Country	Fight result	Fight time
1	Karimov Tarian	AZE	(0:0) 0:1 (0:5)	*5'28"*
Total time of Mogushkov's fights				*5'28"*
Fight No	Successive fights and opponents of Isaev Mansur (cat. 73 kg), who won the 1st place			
	Opponent's surname and name	Country	Fight result	Fight time
1	Uematsu Kiyoshi	ESP	(0:0) 1:0 (5:0)	*6'46"*
2	Orujov Rustam	AZE	1:0 (10:0)	*2'42"*
3	Sainjargal Nyam-Ochir	MGL	1:0 (10:0)	*2'38"*
4	Wang Ki-Chun	KOR	1:0 (5:0)	*5'00"*
5	Nakaya Riki	JPN	1:0 (5:0)	*5'00"*
Total time of Isaev's fights				*22'06"*
Fight No	Successive fights and opponents of Nifontov Ivan (cat. 81 kg), who won the 3rd place			
	Opponent's surname and name	Country	Fight result	Fight time
1	De Windt Reginald	IOA	1:0 (10:0)	*3'55"*
2	Bottieau Joachim	BEL	(0:0) 1:0 (7:0)	*5'07"*
3	Valois-Fortier Antoine	CAN	1:0 (7:0)	*5'00"*
4	Kim Jae-Bum	KOR	0:1 (0:7)	*5'00"*
5	Nakai Takahiro	JPN	1:0 (10:0)	*2'14"*
Total time of Nifontov's fights				*21'16"*
Fight No	Successive fights and opponents of Denisov Kiril (cat. 90 kg), who won the 5th place			
	Opponent's surname and name	Country	Fight result	Fight time
1	Remarenco Ivan	MDA	1:0 (10:0)	*2'50"*
2	Gordon Winston	GBR	1:0 (5:0)	*5'00"*
3	Iliadis Ilias	GRE	1:0 (5:0)	*5'00"*
4	Gonzalez Asley	CUB	0:1 (0:10)	*4'37"*
5	Nishiyama Masashi	JPN	(0:0) 0:1 (0:1)	*8'00"*
Total time of Denisov's fights				*25'27"*
Fight No	Successive fights and opponents of Khabulaev Tagir (cat. 100 kg), who won the 1st place			
	Opponent's surname and name	Country	Fight result	Fight time
1	Van der Geest Elco	BEL	1:0 (10:0)	*1'45"*
2	Biadulin Yauhen	BLR	1:0 (7:0)	*5'00"*
3	Krpalek Lukas	CZE	1:0 (10:0)	*4'34"*
4	Peters Dimitri	GER	(0:0) 1:0 (1:0)	*8'00"*
5	Naidan Tuvshinbayar	MGL	1:0 (10:0)	*2'12"*
Total time of Khabulaev's fights				*21'31"*
Fight No	Successive fights and opponents of Mikhaylin Aleksander (cat. +100 kg), who won the 2nd place			
	Opponent's surname and name	Country	Fight result	Fight time
1	Nandembo Cedric	COD	1:0 (10:0)	*0'49"*
2	Sherrington Christopher	GBR	(0:0) 1:0 (5:0)	*6'38"*
3	Silva Rafael	BRA	(0:0) 1:0 (1:0)	*8'00"*
4	Toelzer Andreas	GER	(0:0) 1:0 (5:0)	*7'27"*
5	Riner Teddy	FRA	0:1 (0:7)	*5'00"*
Total time of Mikhaylin's fights				*27'54"*
Total time of Russian representatives' fights during the OG in 2012				141'52"

Tab. 4. Dominant techniques and the most often performed ones by Russian representatives during the OG 2012 in London

Dominant techniques of Russian representatives					Techniques most often performed by Russian representatives		
k	k1	k2	k3	name of the technique	place	name of the technique	number of attacks
1	1	2	1	kuzure kesa gatame	1	kouchi gari	81
1	1	2	1	ude hishigi juji gatame	2	deashi harai	53
3	3	2	3	harai goshi	3	tai otoshi	39
3	3	2	3	kosoto gari	4	kosoto gari	37
5	9	2	6	tani otoshi	5	ouchi gari	33
6	11	1	5	uchimata	6	uchimata	21
7	5	9	7	seoi nage	7	seoi nage	17
7	5	9	7	tai otoshi	8	sasae tsurikomi ashi	16
7	5	9	7	okuri eri jime	9	sode tsurikomi goshi	14
7	5	9	7	uchimata sukashi	9	kosoto gake	14
11	12	2	7	sode tsurikomi goshi	11	tomoe nage	13
11	12	2	7	kosoto gake	12	sukui nage	12
13	10	9	13	deashi harai	13	ude hishigi juji gatame	10
14	14	9	14	sumi gaeshi	14	okuri eri jime	7
14	14	9	14	uki waza	15	osoto gari	6

Tab. 5. Dominant techniques and the most often performed ones by Russian representatives' opponents during the Olympic Games in London 2012

Dominant techniques of Russian representatives' opponents					Techniques most often performed by Russian representatives' opponents		
k	k1	k2	k3	name of the technique	place	name of the technique	number of attacks
1	1	1	1	tai otoshi	1	kouchi gari	65
2	2	1	2	seoi nage	2	deashi harai	63
3	3	1	3	ouchi gari	3	tai otoshi	41
3	3	1	3	tani otoshi	5	ouchi gari	33
3	3	1	3	kosoto gari	6	seoi nage	30

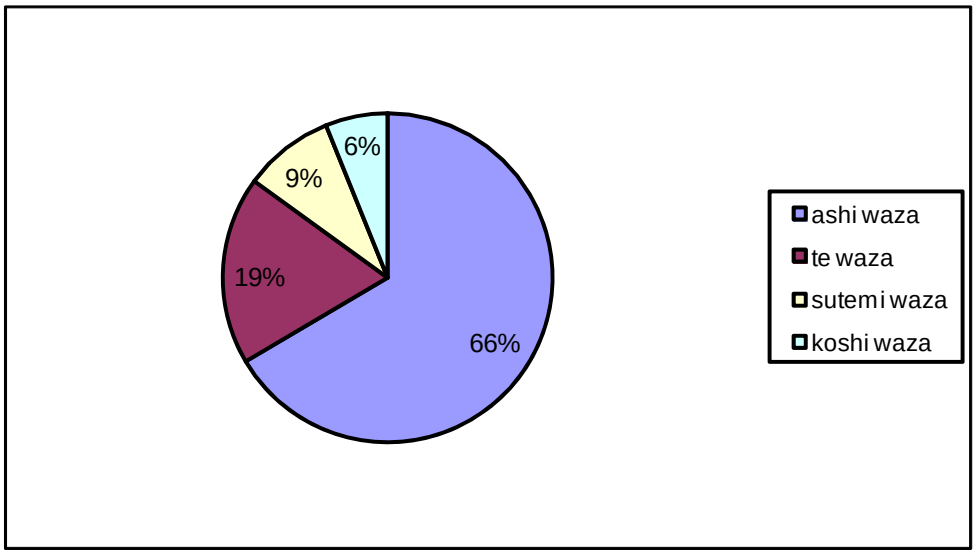

Fig. 1. Frequency of the attempted throw attacks by Russian competitors during the London Olympic Games in 2012

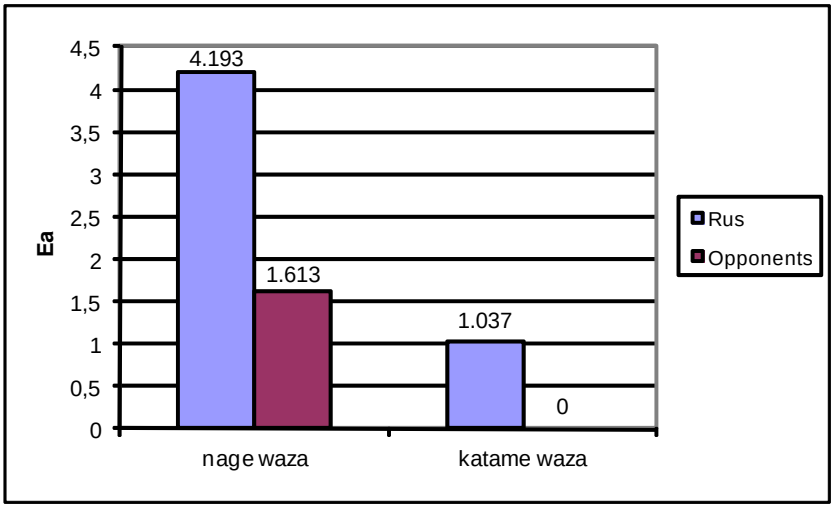

Fig. 2. The effectiveness of throws and grips during the Olympic Games in London in 2012

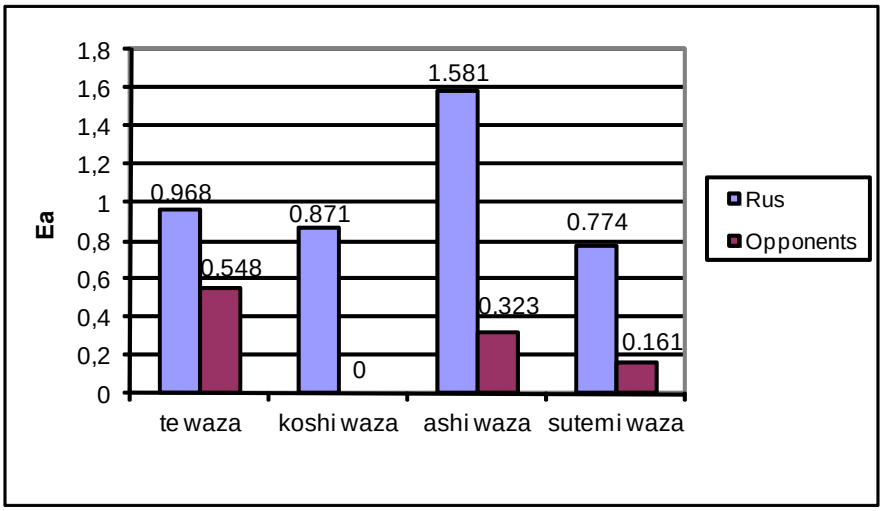

Fig. 3. The effectiveness of throws during the Olympic Games in London in 2012

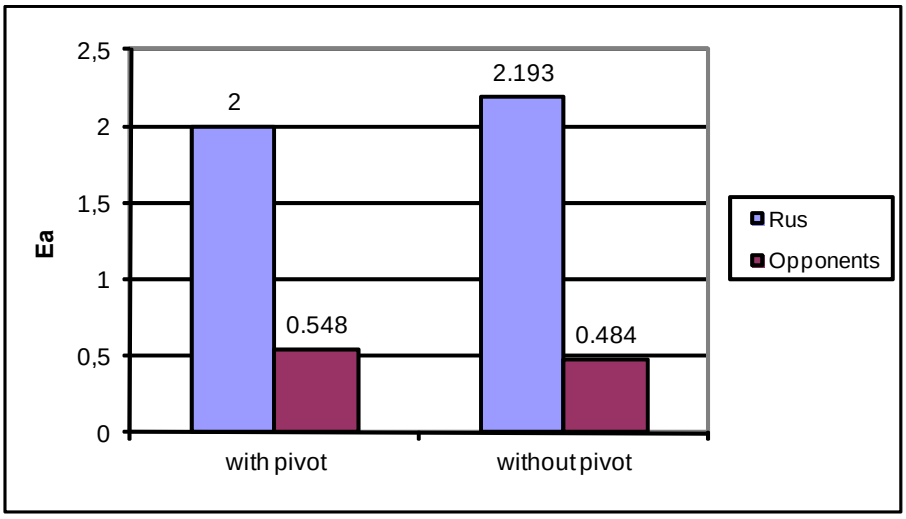

Fig. 4. Throws performed with the body pivot and without the pivot during the OG in London in 2012

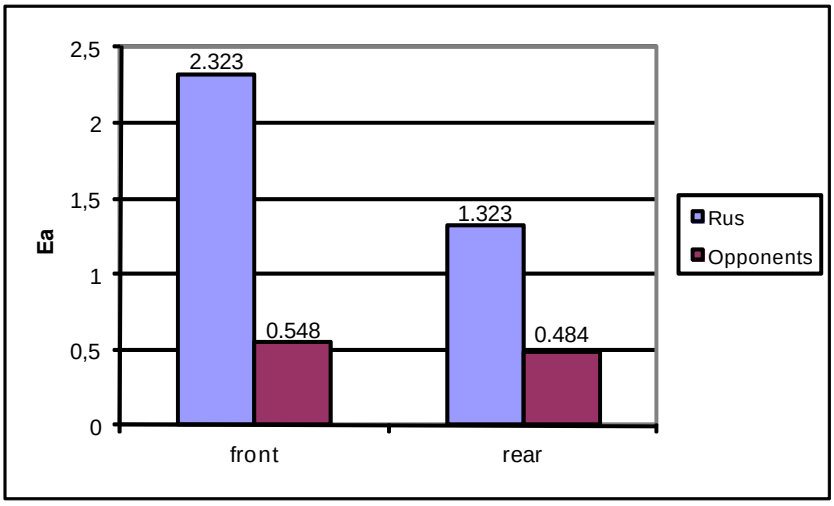

Fig. 5. Throws performed with front leaning (on the toes) and with rear leaning (on the heels) during the Olympic Games in London in 2012

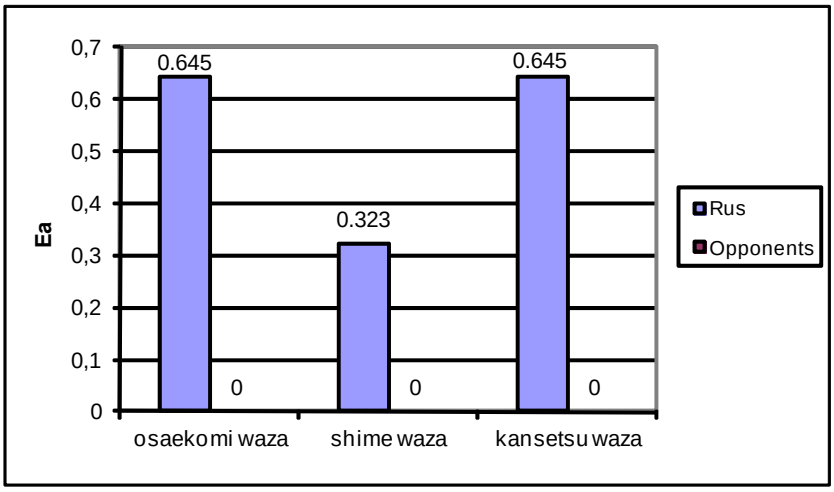

Fig. 6. Grips performed by Russian athletes during the Olympic Games in London in 2012

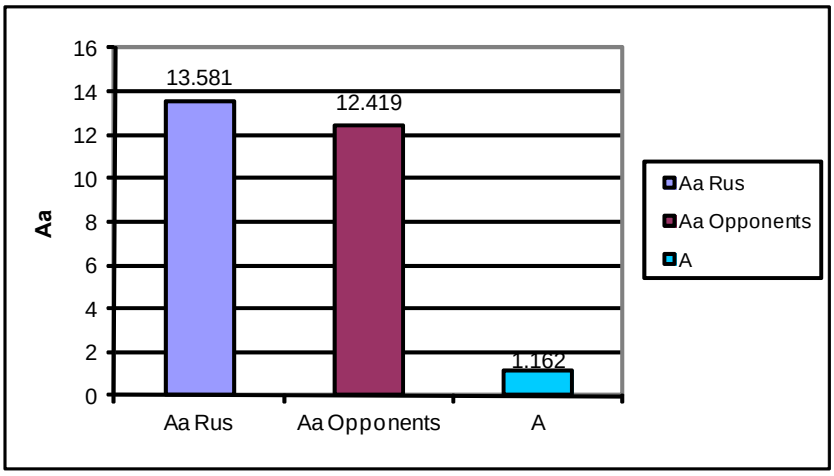

Fig. 7. The frequency of attacks performed during the Olympic Games in London in 2012

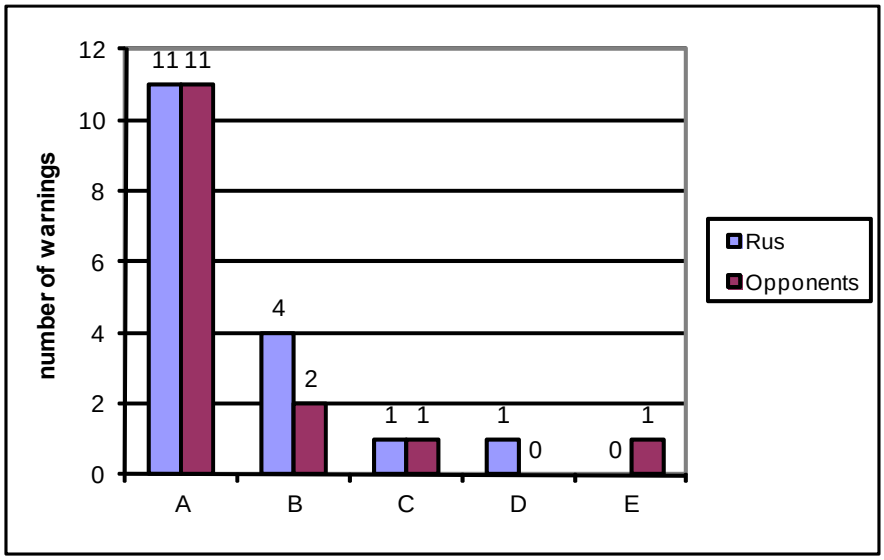

Fig. 8. The efficiency of attack and defence among Russian athletes during the OG in London in 2012

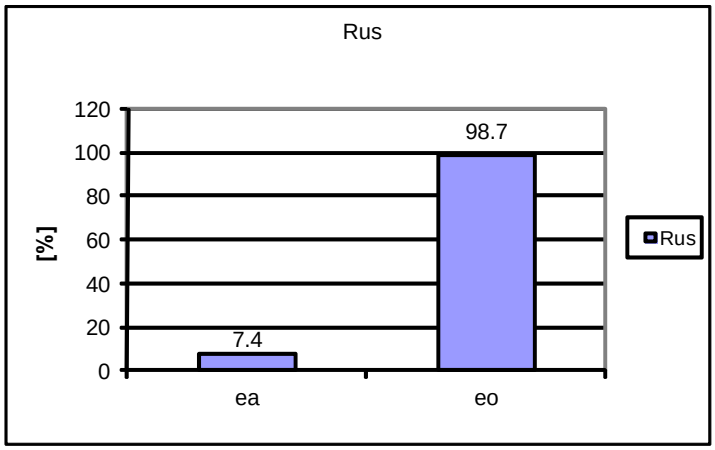

Fig. 9. The number of warnings (shido 1) given during the 2012 OG in London: for passivity during the fight (A), for avoiding grips (B), for leaving the field of fight (C), for defensive attitude (D), for unreal attack (E).

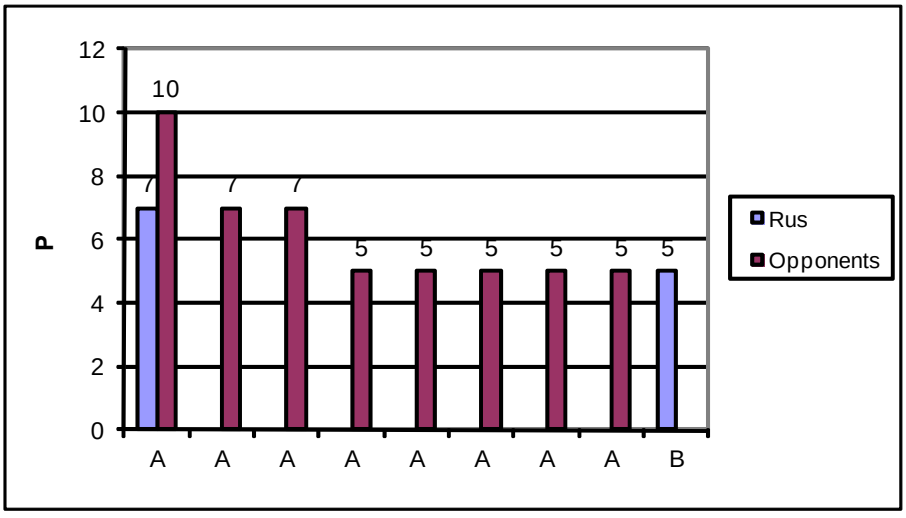

Fig. 10. Points lost for judges' penalties (shido 2 – 5 points, shido 3 – 7 pts, shido 4 – 10 points) during the Olympic Games in London in 2012: for a passive attitude during the fight A, for leaving the field of fight B

Discussion

Russian men's judo representation was well prepared for the Olympics in London in 2012 and achieved its greatest sports success. The advantage of attacks performed with foot throws (*ashi waza*) is confirmed by the most frequent placement of these techniques in the *tokui waza* (favourite techniques) of the most outstanding athletes. Foot throws, such as *uchimata*, *osoto gari* and *ouchi gari* and the hand throw *seoi nage* and the armbar *ude hishigi juji gatame* are the most often listed techniques by leading athletes [8].

Athletes were characterized by superiority over their direct opponents in the efficiency of the executed throws and grapplings (*nage* and *katame waza*). Their advantage over opponents in the frequency of attacks was probably the reason for a significant number of penalties (loss of points) that their opponents received for a passive fighting style. They achieved high efficiency of defence, as their opponents failed to execute any efficient grappling technique in ground fighting – *ne waza*. They retained balanced efficiency of the groups of throws (Ea): *te waza, koshi waza* and *sutemi waza*. The participants of the Olympic Games in London performed throws (*nage waza*) more efficiently than Russians: representatives of Russia – *nage waza* Ea = 4.193, all athletes – *nage waza* Ea = 5.960. During the Olympic Games Russians performed hip throws (*koshi waza*) and joint locks (*kansetsu waza*) more efficiently than other participants in the Olympics [9]. Representatives of Japan, who dominated the World Championships in 2010, used foot techniques (*ashi waza*) frequently and efficiently, obtaining the value of Ea = 3.705, while the value of this index for all groups of throws (*nage waza*) was Ea = 6.051 [7].

Achievements of Russian athletes (and earlier representatives of the USSR) to date were attributed to a certain distinctiveness and originality in the ways of performing throwing techniques and in efficient teaching of joint locks [10, 11]. The authors present the methodology of teaching those elements that contributed to the success of Russian sports representatives. Throws which concentrate on gripping the opponents' legs with hands were eliminated by the changes to sports regulations introduced in 2009 (www.ijf.com). Many judo techniques which athletes had used were eliminated from sports fight, despite the fact that they belonged to the basic elements of their training [12]. Winning a fight is dependent on proper mastery of techniques, which is frequently obtained in a long process of efficient and methodological teaching carried out under the care of skilled and competent trainers. The validity of teaching the technique determines the efficiency of its execution in a sports fight [13, 14, 15, 16,17].

Tactical and technical efficiency during the most important competitions is one of the many factors that determine the ultimate success. Factors determining a correct training process are complex and difficult issues involving professionals from many fields of science with various specializations [18, 19, 20, 21]. Also genetic predisposition, motor preparation, mental readiness, motivation, and other characteristics are those factors that may decide about the ultimate sports outcome [22]. One does not give up the search for other factors that may have a significant impact on athletes' performance during sports competitions, such as the efficiency of the balance apparatus [23].

Organisation of training and the coaching staff are an inseparable link in the preparation system. Russian judo representation had been intensively preparing under the direction of an Italian coach, the Olympic champion from Moscow Ezio Gamba, who with his training team (made up of Russian coaches) had conducted preparation for the Olympics for a few years. To what extent had this system of preparation, coaching staff and incurred costs decided about the final success in London? Direct answers to many of these questions cannot be received, but further analysis of the future World Championships and the Olympics Games will allow noticing new directions in optimizing the preparation of judo athletes and searching for model values.

Conclusions

The analysis of the collected material presented in the paper allowed for the formulation of the following conclusions and observations:

1. During the Olympic Games in London representatives of the men's Russian national judo team achieved the greatest success of all the previous starts.

2. They obtained higher values of the analysed indices than their opponents.
3. They were characterized by steady efficiency of attacks in the subsequent groups of throws.
4. They were far superior to other participants in the Olympic Games in London in the efficiency of executing joint locks (*kansetsu waza*) and hip throws (*koshi waza*).
5. They dominated over their opponents in the frequency of executed attacks, which resulted in the fact that the latter received penalties and reprimands for a passive attitude during the fight.
6. Russian athletes were characterized by high efficiency of defence activities.

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