

COACHING

MAREK ADAM^{1(ABCDEF)}, HIROMI TOMITA^{2(ABF)}, MICHAŁ SZYMAŃSKI^{3(ACDF)},
PIOTR KLIMOWICZ^{4(ABCF)}, SŁAWOMIR TYSZKOWSKI^{1(ABEF)}, BEATA WOLSKA^{1(ABDF)}

¹University of Physical Education and Sport, Department of Combat Sports – Gdańsk (Poland)

²University of Puerto Rico, Department of Sport Science - Rio Piedras (Puerto Rico)

³Technical University, Department of Management and Economics – Gdańsk (Poland)

⁴Technical University, Department of Sport Science – Białystok (Poland)

Correspondence:

Adam Marek, Prof. AWF, University of Physical Education and Sport,

80-336 Gdańsk, ul. Kazimierza Górskiego 1,

e-mail: awfadammarek@wp.pl

Ways of performing judo throws, and their efficiency, assessed in the open weight category in All-Japan Judo Championships

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Abstract

Background. Kano Jigoro, one of the founders of judo, developed an official classification of judo techniques which is currently being modernized by the Japanese Kodokan Judo Institute. There is no indication that earlier individual attempts in this area have been carried out in Japan. Judo masters including Kano, Koizumi, Kudo, Mifune, Tomiki and others have tried to introduce additional criteria to the classification.

The need for so many modifications is a result of the many sport and referee rule changes, as well as to ensure the safety of competitors and to increase the attractiveness of judo contests.

Purpose of the work. The purpose of this work was to determine the ways of performing the judo throws and their efficiency during All-Japan Judo Championships at open weight category.

Material/methods. 278 open category judo players were recorded during the All-Japan Judo Championships (2003-2012). The competitors successfully executed 252 attacks using 34 judo throws classified by the Kodokan Judo. Effective attacks divided by: *uchi* - reaping legs from inside, *soto* - hooking/reaping opponents' legs from outside, *otoshi* - throws performed by dropping body, *gaeshi* - throws performed as counterattacks, *tsurikomi* - throws performed by pull-lifting with hands, *harai* - throws performed by sweeping with legs or hips and *makikomi* - throws performed by winding the opponent's body, were distinguished. The sequence of dominant techniques was presented by the “K” index, and the directions and ways of performing the throws were determined by the efficiency attack index.

Results. The most effective Japanese competitors performed three throws by UCHI: *uchimata*, *ouchi gari*, *kouchi gari*, and three throws by SOTO: *osoto gari*, *kosoto gake*, *kosoto gari*. The following throwing techniques, during the Championships, were dominant: *uchimata*, *ouchi gari* and *osoto gari* which ended the contests by ippon (before contest time had elapsed); they were most often executed successfully, and the competitors gained most referee's points. The observed competitors demonstrated even effectiveness in executing throws, forward - breaking balance onto tip-toes, and backward - breaking balance onto heels. Comparatively effectively, they performed throws into the four analyzed directions.

Conclusions. The Japanese competitors performed the most effective attacks by using leg throws which call for the reaping actions of legs either from inside or outside UCHI and SOTO. Fewer techniques, executed perfectly resulted in gaining more referee's points. Using these techniques put the competitors in a better position to carry out attacks and changing their direction.

Introduction

Kano Jigoro made the first classification of the judo techniques, because there was no classification in jujutsu. Particular styles (ryu) referred to some groups of jujutsu techniques, e.g. there were more throws in the Kito-ryu, whereas grappling techniques and some hip throws were in the Tenshin-shinyo-ryu. The judo techniques were many times divided into groups which made them easier to get to know, learn and improve. Kano, who modernized jujutsu techniques, also looked for elements from other combat sports which could improve the effectiveness of judo techniques [Kano, Kodokan 2009; Shishida 2011].

The authors of many judo manuals on teaching judo techniques, are searching for elements which could be criteria for dividing the judo techniques. Identification of similar features at executing judo throws, can be a useful standard in teaching judo techniques. Kyuzo Mifune, one of the prominent judo teachers, in his book entitled “Judo Kampf und Technik”, has presented judo throws according to *gokyo* as well as a separate group of throws “special throws” which were not included in to GOKYO; however those throws were very successfully used in judo and jujutsu as well [Mifune 1967].

In “Dynamic Judo-throwing techniques” by Kazuzo Kudo an excellent Japanese judo master, we can find another division of the judo throws considering features as: a shape of action, a part of the body which is used at executing throws, a way of the commencing a throw and so on [Kudo 1976].

Another Japanese judo master and a teacher Gunji Koizumi said that for systematic and effective studying the throws, they could be divided into three groups of throws which differ in their basic principles of executions: *kuruma waza*, *tenbin waza* and *tsumazukase waza* [Koizumi 1960].

The authors, of the above mentioned works, do not suggest ways of changing the official Kodokan Judo classification, but they indicate the possibility of distinguishing the additional common features at executing judo throws.

In the official classification of the judo throws of the Kodokan Judo there are 67 throwing techniques; 47 throws from the *tachi waza* group and 20 throws from the *sutemi waza* group [Kano 1986; Daigo 2005].

In 2010 the change of judo sports rules was carried out, which was connected with a ban on direct grasping an opponent's leg or legs. That rule resulted in a ban on executing five throws from the *te waza* group as: *kata guruma*, *sukui nage*, *morote gari*, *kuchiki taoshi* and *kibisu gaeshi*. In the previous years the throws as: *daki age*, *kani basami*

and *kawazu gake* were also withdrawn from the sport judo contests because they were regarded as dangerous and caused injuries. Nowadays, there are 59 throws classified by the Kodokan Judo, and these techniques can be used during judo contests [Adams, Oon Yoch 2011].

Purpose of the work

The purpose of this work was to determine the ways of performing the judo throws and their efficiency during All-Japan Judo Championships at open weight category

Material, methods

The analysis of the film material from the Japan's Championships 2003-2012 at open weight category was carried out. The material was recorded on ten video cassettes and processed by the Kodokan Institute. The tactical-technical elements used during the Championships were assessed by Japanese experts. 278 contests were recorded and then analyzed during those contests the Japanese players used successfully 37 throwing techniques while executing 252 attacks from the *nage waza* group, and they obtained the referee's points (*ippon*, *waza ari*, *yuko*). In order to obtain the necessary data the study used many judo competitors, based on the work by Anguera *et al.* [2001] and Gutierrez-Santiago *et al.* [2011] i) the study required monitoring over a long time period (10 years) i) many subjects were observed, and i) many ways of executing were registered and analyzed. Spelling and names used in judo have been presented in accordance with the Japanese-English dictionary [Kawamura, Daigo 2000]. In this paper the own authors' division of the judo throws has been presented, considering the ways of performing the attacks and the dominant elements of the techniques executed.

The classified groups of throws and the techniques recorded during the analyzed contests are presented below:

1. UCHI (throws performed by reaping/hooking opponent's legs from inside): *uchimata*, *ouchi gari*, *kouchi gari*
2. SOTO (throws performed by reaping/hooking opponent's legs from outside): *osoto gari*, *kosoto gake*, *kosoto gari*
3. OTOSHI (throws performed by body dropping): *tai otoshi*, *tani otoshi*, *sumi otoshi* and *uki otoshi*
4. GAESHI/SUKASHI (throws performed by responding to an opponent's attack – counter-attacks or counter throws): *osoto gaeshi*, *uchimata*

gaeshi, ouchi gaeshi, uchimata sukashi, kouchi gaeshi, harai goshi gaeshi, sumi gaeshi

5. TSURIKOMI (throws performed by pulling-lifting action with hands): *sasae tsurikomi ashi, tsurikomi goshi, harai tsurikomi ashi*
6. HARAI (throws performed by sweeping action with leg or hip): *harai goshi, deashi harai*
7. MAKIKOMI (throws performed by winding an opponent's body): *harai makikomi, uchimata makikomi, osoto makikomi, soto makikomi*

The techniques which have no common features connected with executing attacks are as follows: *ashi guruma, seoi nage, tomoe nage, kata guruma* and techniques have been forbidden (since 2010) *kuchiki taoshi, kata guruma*.

The dominant techniques have been determined on the strength of three criteria of values which allow to assign a sequence of the techniques used efficiently – K criteria which determine the dominant techniques [Adam et al. 2013b].

1. A sequence of the techniques according to the attacks assessed (*ippon, waza ari, yuko*)
2. A sequence of the techniques by a number of all efficient attacks (assessed by a referee's points)
3. A sequence according to the sum of auxiliary referee's points, where *ippon* = 10 pts., *waza ari* = 7 pts., *yuko* = 5 pts.

$$K = K1 + K2 + K3$$

K1 – the 1st criterion

K2 – the 2nd criterion

K3 – the 3rd criterion

Determining the efficiency indexes.

The efficiency indexes (Sa) were determined by summing up the referee's points for the efficient execution of the throws counting per one contest [Adam 2013].

Calculation has been carried out in the following way:

$$Sa = 5xM + 7xM + 10xM / n$$

Sa – efficiency attack index

5,7,10 – points for efficient attacks (*yuko, waza ari, ippon*)

M – the number of efficiently executed attacks (assessed by a referee)

n – the number of the analyzed contests

Results

During the Japan's Championships (2003–2012) at open category, leg techniques (*ashi waza*) were the dominant throws, performed by reaping an oppo-

nent's leg from inside UCHI. *Uchimata* and *ouchi gari* were those throws which had the highest values of the K index and its components (K1, K2 and K3) [tab 1]. Also effectively were performed throws from the same *ashi waza* group but by reaping leg from outside SOTO, and *osoto gari* throw was classified as the third efficient throw in its the K index values [tab. 2]. The throws where body drop OTOSHI is necessary had also high values of the K index. The Japanese competitors were able to perform efficiently six throws, mainly *tai otoshi* and *seoi otoshi* [tab.3]. Counter-attacks were another group of efficiently executed throws GAESHI/SUKASHI. The most effective technique was *osoto gaeshi*. *Uchimata gaeshi* and *uchimata sukashi* were the most effective counter-attacks against *uchimata* throw [tab. 4]. Another effective group of throws were techniques where pull-lift TSURIKOMI with hands is necessary. Among three throws, *sasae tsurikomi ashi* had the highest K value [tab. 5]. So called "sacrifice" throws performed by winding opponent's body MAKIKOMI were classified at 6th position [tab. 6]. In table 7, there are throws which were efficiently executed during the analyzed Championships, and in table 8 we can see the throws performed by grabbing opponent's leg or legs, and they were withdrawn from sport judo contests in 2010. The Japanese players performed equally successfully (Sa) forward attacks (breaking opponents balance onto his tip-toes) as well as backward attacks (onto their heels) [fig. 1]. The throws were performed equally efficiently equally into four analyzed directions (onto tip-toes forward right and left, and onto heels backward right and left) [fig. 2].

4. Discussion

During the All-Japan Judo Championships 2003–2012 at the open category, 34 throwing techniques were used of 67 classified by the Kodokan Judo. Three of them: *daki age, kawazu gake, kani basami* were forbidden in sport contests [Daigo 2005]. In 2010 a modification of judo sport rules was introduced. The modification was connected with the ban on direct grabbing an opponent's leg or legs, and it resulted in elimination from sport contests five hand throws: *kata guruma, sukui nage, morote gari, kuchiki taoshi and kibisu gaeshi*; moreover the modification limited the performance of the throws, *renraku waza* and counter-attacks where competitors were grabbing opponents legs [Adams, Yeon 2011]. The domination of leg throws, among Japanese players, was already manifested during the observation of the first All – Japan Championships at the open category [Otaki 1954]. These throws

Table 1. The efficiency of throws performed by reaping opponent's leg from inside reaping - *UCHI*

| K | Techniques | <i>Ippon</i> | <i>Waza ari</i> | <i>Yuko</i> | K1 | K2 | K3 |
|----------|--------------------|--------------|-----------------|-------------|----------|----------|----------|
| 1 | <i>Uchimata</i> | 21 | 7 | 11 | 1 | 1 | 1 |
| 2 | <i>Ouchi gari</i> | 15 | 7 | 10 | 2 | 2 | 2 |
| 14 | <i>Kouchi gari</i> | 1 | 3 | 8 | 20 | 6 | 8 |
| 1 | Total Uchi | 37 | 17 | 29 | 1 | 1 | 1 |

Table 2. The efficiency of throws performed by reaping/hooking opponent's leg from outside - *SOTO*

| K | Techniques | <i>Ippon</i> | <i>Waza ari</i> | <i>Yuko</i> | K1 | K2 | K3 |
|----------|--------------------|--------------|-----------------|-------------|----------|----------|----------|
| 3 | <i>Osoto gari</i> | 11 | 5 | 3 | 3 | 3 | 3 |
| 5 | <i>Kosoto gake</i> | 8 | 1 | 2 | 4 | 8 | 5 |
| 7 | <i>Kosoto gari</i> | 2 | 7 | 8 | 14 | 4 | 5 |
| 2 | Total Soto | 21 | 13 | 13 | 2 | 2 | 2 |

Table 3. The efficiency of throws performed by body dropping - *OTOSHI*

| K | Techniques | <i>Ippon</i> | <i>Waza ari</i> | <i>Yuko</i> | K1 | K2 | K3 |
|----------|---------------------|--------------|-----------------|-------------|----------|----------|----------|
| 4 | <i>Tai otoshi</i> | 5 | 3 | 5 | 5 | 5 | 6 |
| 6 | <i>Seoi otoshi</i> | 5 | 2 | 5 | 5 | 6 | 7 |
| 15 | <i>Osoto otoshi</i> | 3 | 1 | 0 | 9 | 16 | 16 |
| 18 | <i>Tani otoshi</i> | 1 | 1 | 3 | 20 | 14 | 18 |
| 22 | <i>Sumi otoshi</i> | 2 | 0 | 1 | 14 | 22 | 22 |
| 26 | <i>Uki otoshi</i> | 1 | 1 | 0 | 20 | 26 | 26 |
| 3 | Total Otoshi | 17 | 8 | 14 | 3 | 3 | 3 |

Table 4. Counter-attacks – *GAESHI/SUKASHI*

| K | Techniques | <i>Ippon</i> | <i>Waza ari</i> | <i>Yuko</i> | K1 | K2 | K3 |
|----------|-----------------------------|--------------|-----------------|-------------|----------|----------|----------|
| 10 | <i>Osoto gaeshi</i> | 3 | 3 | 0 | 9 | 12 | 12 |
| 17 | <i>Uchimata gaeshi</i> | 1 | 2 | 3 | 20 | 12 | 15 |
| 19 | <i>Ouchi gaeshi</i> | 1 | 1 | 2 | 20 | 16 | 19 |
| 21 | <i>Uchimata sukashi</i> | 2 | 1 | 0 | 14 | 22 | 19 |
| 31 | <i>Kouchi gaeshi</i> | 1 | 0 | 0 | 20 | 32 | 31 |
| 33 | <i>Harai goshi gaeshi</i> | 0 | 0 | 2 | (31) | 26 | 31 |
| 34 | <i>Sumi gaeshi</i> | 0 | 0 | 1 | (31) | 32 | 34 |
| 4 | Total Gaeshi/Sukashi | 8 | 7 | 8 | 5 | 4 | 4 |

Table 5. The efficiency of throws performed by pull-lifting action with hands – *TSURIKOMI*

| K | Techniques | <i>Ippon</i> | <i>Waza ari</i> | <i>Yuko</i> | K1 | K2 | K3 |
|----------|-----------------------------|--------------|-----------------|-------------|----------|----------|----------|
| 8 | <i>Sasae tsurikomi ashi</i> | 3 | 4 | 2 | 9 | 9 | 9 |
| 13 | <i>Tsurikomi goshi</i> | 3 | 1 | 1 | 9 | 14 | 13 |
| 14 | <i>Harai tsurikomi ashi</i> | 4 | 0 | 0 | 7 | 16 | 14 |
| 5 | Total Tsurikomi | 10 | 5 | 3 | 4 | 5 | 5 |

Table 6. The efficiency of throws performed by sweeping action - *HARAI*

| K | Techniques | <i>Ippon</i> | <i>Waza ari</i> | <i>Yuko</i> | K1 | K2 | K3 |
|----------|---------------------|--------------|-----------------|-------------|----------|----------|----------|
| 9 | <i>Harai goshi</i> | 4 | 1 | 2 | 7 | 11 | 10 |
| 12 | <i>Deashi harai</i> | 2 | 1 | 5 | 14 | 10 | 11 |
| 6 | Total Harai | 6 | 2 | 7 | 7 | 6 | 6 |

Table 7. The efficiency of throws performed by winding action - *MAKIKOMI*

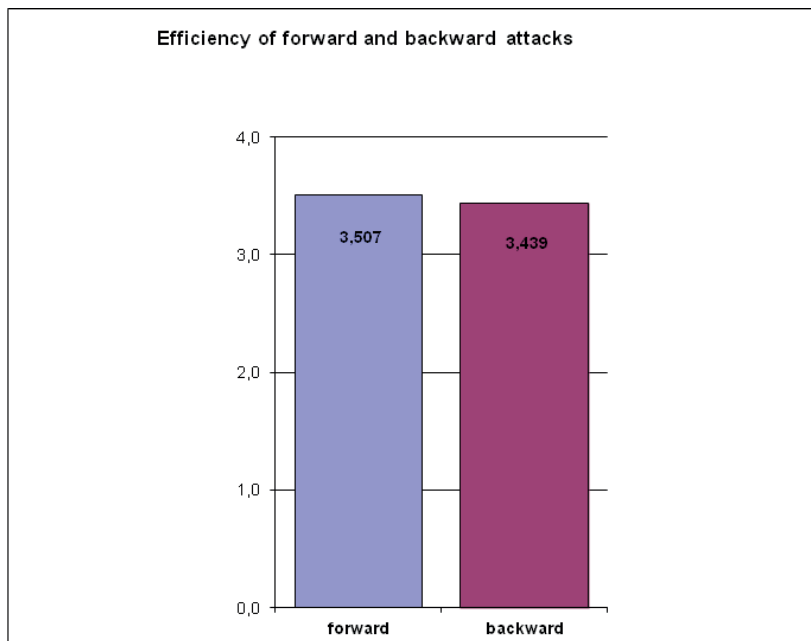
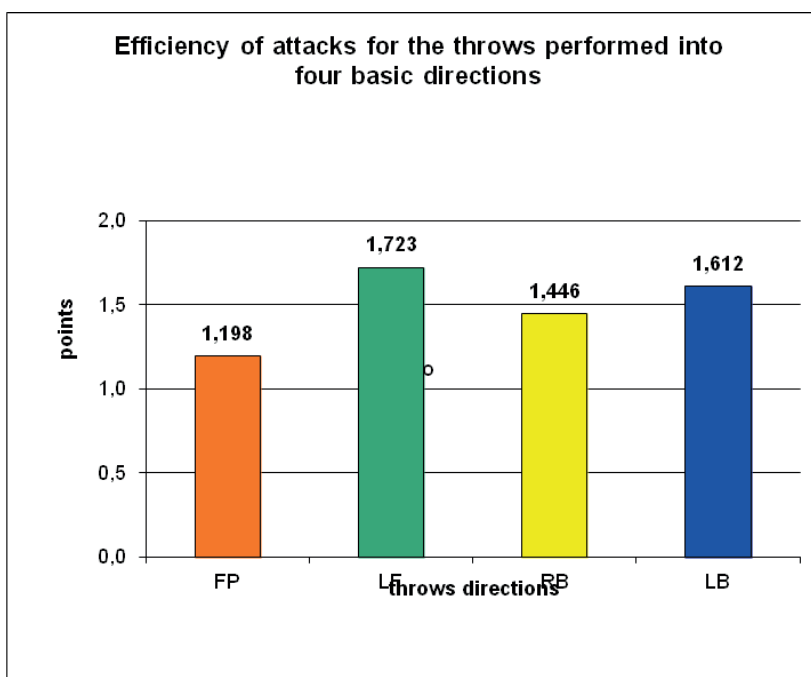
| K | Techniques | <i>Ippon</i> | <i>Waza ari</i> | <i>Yuko</i> | K1 | K2 | K3 |
|----------|--------------------------|--------------|-----------------|-------------|----------|----------|----------|
| 19 | <i>Harai makikomi</i> | 1 | 1 | 2 | 20 | 16 | 19 |
| 24 | <i>Uchimata makikomi</i> | 2 | 0 | 0 | 14 | 26 | 25 |
| 26 | <i>Osoto makikomi</i> | 1 | 1 | 0 | 20 | 26 | 26 |
| 30 | <i>Soto makikomi</i> | 0 | 1 | 2 | (31) | 22 | 26 |
| 8 | Total Makikomi | 4 | 3 | 4 | 8 | 7 | 8 |

Table 8. Other throws performed efficiently during the Championships (2003-2012)

| K | Techniques | <i>Ippon</i> | <i>Waza ari</i> | <i>Yuko</i> | K1 | K2 | K3 |
|----|-------------------------|--------------|-----------------|-------------|----------|----------|----------|
| 16 | <i>Ashi guruma</i> | 3 | 0 | 1 | 9 | 16 | 17 |
| 22 | <i>Seoi nage</i> | 2 | 0 | 1 | 14 | 22 | 22 |
| 26 | <i>Tomoe nage</i> | 1 | 1 | 0 | 20 | 26 | 26 |
| 31 | <i>Ura nage</i> | 1 | 0 | 0 | 20 | 32 | 31 |
| 7 | Other techniques | 7 | 1 | 2 | 6 | 8 | 7 |

Table 9. Throws performed by grabbing opponent's leg or legs – forbidden in 2010 and onwards

| K | Techniques | <i>Ippon</i> | <i>Waza ari</i> | <i>Yuko</i> | K1 | K2 | K3 |
|----|-----------------------------------|--------------|-----------------|-------------|----------|----------|----------|
| 25 | <i>Kuchiki taoshi</i> | 0 | 1 | 3 | (31) | 16 | 24 |
| 29 | <i>Kata guruma</i> | 1 | 0 | 1 | 20 | 26 | 30 |
| 9 | Total forbidden techniques | 1 | 1 | 4 | 9 | 9 | 9 |

**Fig. 1.** Efficiency of attacks performed by the opponent; forward (onto tip-toes) and backward (onto heels)**Fig. 2.** Directions of the throws performed (RF – right forward, LF – left forward, RB – right backward, LB – left backward)

were among those the most effective at judo contests [Matsushita, Stepto 1961]. Interesting, this dependence also emerged, after over 50 years, during O.L.G. in London 2012, at the heaviest weight category [Pujszo, Adam, Kuźmińska 2014].

Both groups of techniques: UCHI – reaping opponent's leg from inside, SOTO – reaping opponents leg from outside are classified as the leg techniques ASHIWAZA; and they are determined as the most effective throwing techniques used by Japanese competitors at contemporary contests [Adam 2011, 2013]. However, it is surprising that so few techniques are among those dominant ones. Out of 34 throws three techniques performed by reaping leg from inside (*uchimata*, *ouchi gari*, *kouchi gari*) and three throws performed by reaping/hooking leg from outside (*osoto gari*, *kosoto gari*, *kosoto gake*) they made 51% of all scored referee's points during the analyzed All – Japan Championships. There were techniques performed by body dropping while throwing an opponent – OTOSHI. Out of six recorded and performed in this way throws, two were the most effective: *tai otoshi* and *seoi otoshi*. The form of *seoi otoshi*, during observed contests, was according to the form described by Daigo [2005: 23]. That throw was also classified as a form of *seoi nage* performed at kneeling position [Nakanishi 1992: 30, 101]. A group of throws used against an opponent's attacks is called counterattacks or GAESHI/SUKASHI. The most often effectively performed counter throws: *uchimata gaeshi* and *uchimata sukashi* were those ones against *uchimata*. Then performed counter attacks against *osoto gari* and *ouchi gari* they were *osoto gaeshi* and *ouchi gaeshi* respectively. Pull lifting action TSURIKOMI and HARAI sweeping action were analyzed. A *harai tsurikomi ashi* throws has both these elements, however *tsurikomi* is vital at breaking opponent's balance forward onto tip-toes while pulling – and – lifting with hands. Another characteristic action MAKIKOMI by winding an opponent's body can be seen as an initial movement at breaking balance. The MAKIKOMI techniques were classified as *yoko sutemi waza* – side "sacrifice" throws by the Kodokan Judo in 1920 [Mifune 1967]. During the All – Japan Championships, the analyzed in this paper techniques allowed to perform attacks in different directions what hampered the opponents' defense actions. Kano Jigoro was considering the various technical elements of some martial arts which could influence the judo techniques in terms of their effectiveness and some philosophical ideas which could be similar to the judo principle JU – nonresistance to an opponent's strength [Budo 2009]. These ideas were continued in the works of Tomiki [1942]. Searching for the

ways of improving the judo techniques, we should remember that technical elements as well as philosophical ideas embraced in Budo martial arts are the parts of the Japanese culture [Tokarski 1989; Cynarski 2013].

Summing – up

The Japanese competitors, who took part at the open category in the All – Japan Championships, were very effective in judo contests despite using limited number of throws performed by reaping or hooking their opponents' leg from inside or outside. They were also effective in attacks executed in different directions with breaking opponents' balance either forward or backward. At all criteria which determine the efficiency of performed throws, we can see the throws which were dominant: *uchimata*, *uchi gari*, *osoto gari*.

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Sposoby wykonywania rzutów judo i ocena ich skuteczności (jako kryterium oceny skuteczności technik stosowanych) podczas ogólnojapońskich mistrzostw judo w kategorii open

Słowa kluczowe: techniki judo, klasyfikacja, charakterystyka ataku

Abstrakt

Dominacja zawodników japońskich podczas zawodów międzynarodowych, zmusiła nas do analizy skuteczności ich technik judo, które oni stosowali podczas mistrzostw Japonii. Ocena skuteczności technik judo, dokonywana w oparciu o klasyfikację Kodokan Judo, pozwalała wyodrębnić pewne cechy charakterystyczne dla zawodników japońskich oraz określić wysoką skuteczność rzutów nożnych – *ashi waza*. Przeprowadzony w pracy podział rzutów dokonany w oparciu o sposoby wykonywania ataku, pozwala na stwierdzenie że spośród sześćdziesięciu siedmiu rzutów, z pięciu grup klasyfikacyjnych, (wymienionych przez Kodokan Judo) tylko pięć technik nożnych: *uchimata*, *ouchi gari*, *osoto gari*, *kouchi gari* i *kouchi gake* zadecydowało o zdobyciu czterdziestu ośmiu procent wszystkich punktów sędziowskich przyznawanych za skutecznie wykonywane ataki. Podczas wykonywania tych technik zawodnicy stosowali podcięcia, podbicia lub zahaczenia nóg przeciwników od strony wewnętrznej lub na zewnątrz. Jednocześnie wykonywane rzuty dawały możliwość przeprowadzania ataków we wszystkich analizowanych kierunkach.