COMPARISON OF WINNING POINTS AND PENALTIES BETWEEN DIFFERENT WEIGHT CATEGORIES FOR FEMALE CADETS IN JUDO

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ABSTRACT: The aim of this research is the comparison of winning points (Ippon and Waza-ari) and penalties (Shido), which were the reason for the victory in judo fight between different weight categories for female cadets. The sample consisted of 1459 winning points and 163 penalties between eight different weight categories for female cadets in judo. Variables for this research are winning points Ippon and Waza-ari and penalty Shido. The data were collected from official competition reports for each weight category from European, World and EYOF competitions from 2017 - 2019 year. The results from Pearson's Chi-square test showed the existence of statistically significant differences ($p \leq .05$) between weight categories for female cadets. The variable that contributes most to this difference is the Waza-ari point in the + 70kg weight category. The results of this research can contribute to the improvement of cadets training practice and new ways of researching this issue at different age categories of both genders.

Key words: *women, combat sport, performance analysis, victory*

INTRODUCTION

Ways to win in judo are defined by awarding certain points such as Ippon and Waza-ari (IJF Rules, Article 14 and 15, 2017 and 2020) as a result of a successful throw and successfully performed techniques on the floor: arm lock, chokes and immobilization. (IJF Rules, Article 7, 2017 and 2020). Also, victory can be achieved by winning light (Shido) and heavy (Hansoku make) penalties as a consequence of negatively performed fight (IJF Rules, Article 18, 2017 and 2020). Angus (2006) emphasizes the existence of several intentions of judo rules, such as: protecting competitors from being injured, providing competitors with fair opportunities to achieve Ippon, making judo a dynamic and friendly sport for viewers, and ensuring new and innovative ways for judo to evolve and grow. The points in judo represent the level of competitors excellence to perform a throwing technique and grappling technique, which are evaluated by judges and based on criteria for excellence defined by the rules of judo and International Judo Federation (IJF Rules, 2017; IJF Rules, 2020).

Ippon in judo is said to be derived from feudal times when warriors needed the spirit to end a fight to ensure their survival and similarly, a judoka scoring Ippon finishes his or her opponent of decisively (Takahashi et al., 2005). The other way to win a tournament match is by causing the opponent to accumulate penalties, which can be very effective strategy (Nishioka, 2010). The penalties in judo represent sanctions against those competitors who obstruct the fight and thus the intensity of the fight is not at high level, which has its repercussions in the dissatisfaction of the audience. Therefore, judges have the authority to give certain penalties for fouls during the fight, which criteria are also defined by the rules of judo.

Takahashi et al. (2005.) indicates that violation of rules results in giving the penalties, because of negative performed judo fight and actions which are contrary to the spirit of judo. In judo, analysis of perfomance can be done in three main areas, which are: technical, tactical and time-motion analysis, where Ippon and Waza-ari can be classified in technical, and Shido penalties into tactical variables (Challis, Mataruna-Dos-Santon, 2018). Cadets competitions are closely fitted in Long-term athlete development (LTAD), in which cadet's age fits the phase Training to Train (Balyi, Way, & Higgs, 2013), and at this age, Judo-Specific Objectives are: consolidate and refine tokui-waza (4-8 techniques tailored to the individual), consolidation/development of under-developed skill sets (gripping, tactics, mat position, transition from tachi-waza to ne-waza), high volume of training, including strength training and endurance, development/refinement of all psychological factors leading to Ideal Performance State, introduce, develop and refine at least 4 new techniques per year- one each for offence and defense in tachi-waza and ne-waza (Judo Canada, 2020). Miarka et al. (2014) established that the female competitors differentiate in gripping time before performing a throw and that it lasts 73 seconds for senior female competitors, 38 seconds for female juniors, 45 seconds for juveniles and 41 second for pre-juveniles. Kajmovic, et al. (2017) compared the performance of Top-level female competitors from different levels of competition, which indicated that cadets differ in the attack efficiency index (AEI) of judo techniques from the competition, where the most effective technique is Kesa Gatame, Ouchi Gari and Sumi otoshi, and where they show different tendencies in the use of judo techniques compared to junior, U23 and senior competitors. The aim of this research is the comparison of winning points (Ippon and Waza-ari) and penalties (Shido) between different weight categories of female cadets in judo.

METHODS

Subjects

The sample of subjects consists of 1622 winning points and penalties, of which 1081 Ippon points, 378 Waza-ari points and 163 Shido penalties in different weight categories: -40kg (62 Ippon points; 34 Waza-ari points; 18 Shido penalties), -44kg (106 Ippon points; 40 Waza-ari points, 13 Shido penalties), -48kg (157 Ippon points; 54 Waza-ari

points; 17 Shido penalties), -52kg (153 Ippon points; 65 Waza-ari points; 31 Shido penalites), -57kg (156 Ippon points; 63 Waza-ari points; 23 Shido penalties), -63kg (178 Ippon points; 60 Waza-ari points; 22 Shido penalties), -70kg (139 Ippon points; 41 Waza-ari points; 17 Shido penalties) and +70kg (130 Ippon points; 21 Waza-ari points; 22 Shido penalties).

Variables

Variables for this research are: a) Winning point Ippon (whole point), and the judge criteria are: speed, strength, throwing rival on the back, mastering move until the end, arm lock, choking, holding for 20 seconds; two Waza-ari points make one Ippon; b) Winning point Waza-ari (half point), and the judge criteria are: lack in one of four elements needed to win Ippon, holding 10 to 19 seconds, rolling rival on the back without interruption and rolling rival on the back with interruption and c) Penalties (Shido) which was the deciding factor in the fight.

DATA COLLECTION

The data were collected from European Youth Olympic Festival (Gyor, 2017 and Baku, 2019), European Cadets Championships (Kaunas, 2017; Sarajevo, 2018 and Warsaw, 2019) and World Cadets Championships (Santiago de Chile, 2017 and Almaty, 2019) based on official reports from www.ippon.org.

Statistical analysis

Pearson's Chi-square test at the significance level of $p \leq 0.05$ was used to determine the differences between the frequencies expressed in the winning points and the

penalties. For analyzing the strength of the association, Cramer's V was implemented. To determine the significance of differences between cells in different weight categories, standard residuals (Std. Residual) were calculated. Data were processed using SPSS 22.0 Premium IBM Corporation, USA).

RESULTS

Table 1 and Figure 1 shows the percentages of winning points and penalties in judo between different weight categories for female cadets in judo. The results showed statistically significant differences (Pearson's Chi-square: 29.2; p-value: .010; Cramer's V =.095; Sig=.010) in winning points and penalties in judo between different weight categories for female cadets. By analyzing individual cells in different weight categories, the biggest contributor to this difference is the cell Waza-ari in the weight category +70kg, whose amount of standardized residual is

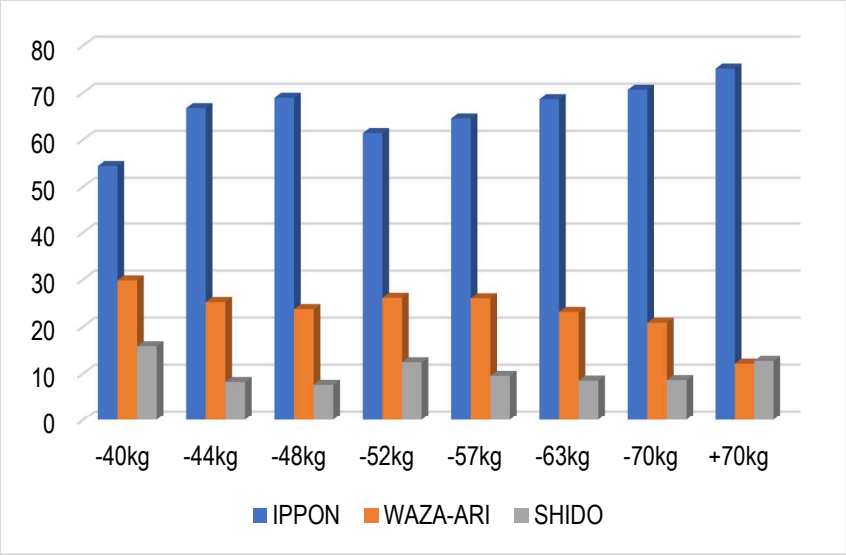
-3.0. There was a decrease in wins by a point Waza-ari to the lowest level in comparison with other categories, and at the same time the highest number of wins by Ippon points.

Table 1. Comparison of winning points and penalties between different weight categories for female cadets in judo

CATEGORY		WINNING POINTS & PENALTY			TOTAL
		Ippon	Waza-ari	Shido	
-40kg	Count	62	34	18	114
	% within Category	54.4 %	29.8%	15.8 %	100.0%
	% within Points & Penalty	5.7%	9.0%	11.0 %	7.0%
	Std. Residual	-1.6	1.5	1.9	
-44kg	Count	106	39	14	159
	% within Category	66.7 %	24.5%	8.8%	100.0%
	% within Points & Penalty	9.8%	10.3%	8.5%	9.8%
	Std. Residual	.0	.3	-.5	
-48kg	Count	157	54	17	228
	% within Category	68.9%	23.7%	7.5%	100.0%
	% within Points & Penalty	14.5%	14.3%	10.4%	14.1%
	Std. Residual	.4	.1	-1.3	
	Count	153	65	31	249

-52kg	% within Category	61.4%	26.1%	12.4%	100.0%
	% within Points & Penalty	14.2%	17.2%	18.9%	15.4%
	Std. Residual	-1.0	.9	1.2	
-57kg	Count	156	63	23	242
	% within Category	64.5%	26.0%	9.5%	100.0%
	% within Points & Penalty	14.4%	16.7%	14.0%	14.9%
	Std. Residual	-.4	.9	-.3	
-63kg	Count	178	60	22	260
	% within Category	68.5%	23.1%	8.5%	100.0%
	% within Points & Penalty	16.5%	15.9%	13.4%	16.0%
	Std. Residual	.4	-.1	-.8	
-70kg	Count	139	41	17	197
	% within Category	70.6%	20.8%	8.6%	100.0%
	% within Points & Penalty	12.9%	10.9%	10.4%	12.1%
	Std. Residual	.7	-.7	-.7	
+70kg	Count	130	21	22	173
	% within Category	75.1%	12.1%	12.7%	100.0%
	% within Points & Penalty	12.0%	5.6%	13.4%	10.7%
	Std. Residual	1.4	-3.0	1.1	
Total	Count	1081	377	164	1622
	% of Total	66.6%	23.2%	10.1%	100.0%

Figure 1. Percentages of winning points and penalties in judo between different weight categories for female cadets



DISCUSSION

By comparing the winning points and penalties between different weight categories for female cadets from different levels of competition for cadets (World, European and EYOF), there were indications that there were differences between categories in the achieved winning points and penalties. By analyzing the winning points and penalties, some interesting information came up: The total percentage value of the winning points in all weight categories is 89.9%, while the total contribution of the Shido penalty to the rival's victory is 10.1%. By analyzing individual points and penalties, the results showed that the total percentage value in all weight categories for female cadets for the point

Ippon is 66.6%, for the point Waza-ari is 23.3% and for the Shido penalty is 10.1%.

These ratios are understandable because, according to the rules of judo, Ippon can be achieved in more ways than Waza-ari and penalty Shido, and they are: throwning, holding on the floor for 20 seconds, arm lock, choke; two Waza-ari make one Ippon, while for Waza-ari, there are fewer options: throwing on the back without moves required for the Ippon, holding the rival for 10 to 19 seconds. Similar results were obtained by Handler, et al (2017) by investigating the technical-tactical preparation of Austrian judoka at the Austrian national championships and reporting that female competitors in the gold medal competition achieved 90.9% points and 9.1% penalties, and in third place fights achieved 96.2% points and 3.8% penalties. Since the Ippon point is the most dominant winning point for female cadets in all weight categories.

Sacripanti (2015) points out that Ippon is the final goal of judo athletes and coaches and Ippon is the part of judo that best approximates the ideal of aesthetic beauty of Dr. Jigoro Kano where timing, speed, strength, power, coordination and control are the basic ingredients of this aesthetic expression, which fascinates every viewer - world's experts or inexperienced. Also, Carratalá, et al. (2010) analyzed the effective ways of struggles applied by teenage female judoka during the Spanish Judo Cadets Championship divided into seven weight categories, but under different rules of judo fighting. Old judo rules until 2009 year, gave competitors more opportunities in assessing the quality of performance of a particular throwing technique (Ippon, Waza-ari, Yuko and Koka), as well as the possibility that, if were tactically and physically at a high level, victory could be achieved with the help of penalties (Shido, Chui, Kei-koka and Hansoku-make).

The results showed that in -44kg category combat efficiency level is reflected on the 38.8% victories achieved through yuko, 34.7% by ippon, 18.4% by koka, 8.2% by waza-ari and 14,3% penalties; in -48kg category combat efficiency level is reflected on the 29.8% victories achieved through koka, 28% yuko, 26.3%, waza-ari 34.7%, ippon 15.7% and 33,3% penalties; in -52kg category combat efficiency level is reflected on the 35.8% victories achieved through yuko, 26.9% ippon, 20.9% koka, 16.4% waza-ari and 16,4% penalties; in -57kg category combat efficiency level is reflected on the 37.7% victories achieved through ippon, yuko 30.2%, koka 17%, and waza-ari 15.1% and 15,0% penalties; in -63kg category combat efficiency level is reflected on the 31.5% victories achieved through koka, 30.1% by yuko, 20.5% by waza-ari and 17.8% by ippon and 20,2% penalties; in -70kg category combat efficiency level is reflected on the 30.8% of victories achieved through ippon, 25% by yuko, 23.1% by koka and 21.1% by waza-ari and 23,1% penalties and in +70kg category combat efficiency level is reflected on the attainment of 31.1% victories through ippon, 21.3% yuko, waza-ari 21.3% and koka 16.4% and 28,0% penalties.

The reason for this dispersion of winning points is that, in addition to points Ippon and Waza-ari, there were Yuko and Koka points, but also Shido, Chui, Kei-koka and Hansoku-make penalties had different ways influencing the victory in the fight. Today's way of winning with 10% penalties can be attributed to the changes in the rules, which have changed several times in the last ten years by the International Judo Federation (IJF). In order to promote judo as an attractive sport for spectators, media and sponsors, the IJF has changed the rules of judo several times. Since 2010 year, Koka (3 points), the lowest score, was removed from the competition (Adam, Smuraj, & Tyszkowski, 2011), and after Olympic Games in Rio 2016 year, Yuko (5 points), was removed from the competition (Calmet, et al., 2017).

Some of the specifics are that the number of Ippon points, as a way to direct victory of the - 40kg category is the smallest, but in the -44kg, -48kg categories is growing, in -52kg category comes to minor falls and rises again from the -57kg, -63kg, -70kg categories.

The highest number of Ippon points is in the +70kg category, while at the same time the number of Waza-ari points is the smallest in the +70kg category and the largest in the -40kg category. This indicates that female competitors from heavier weight categories win easier with Ippon point, while in the lower weight categories it is much more demanding given their morphological characteristics and motor skills. Regarding penalties, the weight category of -52kg female cadets stands out for a greater number of penalties, which contributed to the victory of the more active female athlete during the match, while the smallest number of wins with penalties is in the categories of -44kg, -48kg and -40kg, which indicates the dynamism of fighting in the lower weight categories. Takahashi et al. (2005) suggests that due to the intensity of the fight and the audience, the goal of Ippon judo is to achieve Ippon, and the judo rules make it possible to achieve Ippon in many ways, which from a strategic point of view allows competitors to, if they achieve Ippon score, have the opportunity to economize their energy consumption during the competition and turn such a situation to their advantage in difficult matches. Judoka seeking to score Ippon are typically offensive and possess a dynamical fighting style that is a pleasure to watch (Takahashi et al., 2005). By winning matches with Ippon points, the contestants gain confidence and focus for further matches in which their performance is raised to the maximum. What is obvious from the results is that the cadets behave differently depending on the weight category, and that their competitive experience contributes to this, since the cadets are aged between 15 and 18 years. A possible reason for these various indicators can be attributed to their different morphological characteristics, motor skills and current technical and tactical performance.

CONCLUSION

In order to get a clearer picture of the structure of winning points and penalties for female cadets in different weight categories, the scientific judo

community should determine exactly which throwing and grappling techniques are involved in winning by Ippon and Waza-ari points, as well as which individual contestants' negative actions affect the loss of fight due to the penalties awarded by the judges for each category. By doing so, the feedback could be incorporated into the training process. Finally, cadets of varying quality (regional, national and international) need to develop a desire to win as many fights as possible with maximum - Ippon point and thus respect the first judo principle of "maximum efficiency with minimum energy input" in training and competition, and not underestimate the value of Waza-ari point and winning with the help of penalties.

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