

Effects of International Judo Federation 2013 Rule Revision on *Kumite* Strategies

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Abstract

A rule prohibiting competitors from grabbing their opponents below the belt was implemented by the International Judo Federation in 2013. The current study discusses this rule's effects on gripping techniques used by competitors through a comparison of score rates before and after the rule revision. The comparison is based on characteristics of grabs preceding scored throws performed in competitive matches and on the competitors' gender and the weight class. Matches from four contests, the 2012 and 2013 Grand Slam Tokyo and the 2012 and 2013 Grand Slam Paris, were analyzed. All data relating to competitors' use of grabbing techniques were confirmed unanimously by the three analysts as part of the validation process. The results indicate that re-gripping prior to throwing resulted in a significantly higher score rate in the men's 100 kg weight category while a significantly higher score rate was achieved by competitors who did not attempt to re-grip their opponent prior to throwing them in the women's 52 kg weight category. Based on this study's findings, the 2013 rule revision affected men and women's strategies in different ways. It is recommended that judo practitioners and their trainers tailor their training strategies to accommodate for differences between men's and women's physique, as well as variations related to weight classifications.

1. Introduction

Judo's rules have been revised several times in the last decade (2003, 2006, 2009, 2010, 2013, 2014 and 2017) by the International Judo Federation (IJF) with the intention of drawing more people to the sport (Bobuszewski et al. 2014). Revisions implemented prior to 2013 had little effect in achieving this goal. Through analysis of fighting tactics in championship class men's competitions from 2005 to 2010 (2008 Olympic Games ; 2005 and 2009 World Championships ; 2010 Grand Slam ; 2005 and 2009 World cup tournaments), Bobuszewski et al. (2011) found that sparring effectiveness decreased markedly in competitions as time progressed. Improved defense methods, increased length of contest times, and a significant increase in the number of golden score fights, or a three minute match extension following the regular five minute match, were also noted. It appeared that IJF's attempts had failed in making the sport more dynamic and appealing to a wider audience through the rule revisions.

This prompted the IJF to introduce a rule in 2013 that prohibited competitors from touching their opponent below the belt with their hands or arms. This was meant to send a strong signal that attacking or defending below the belt would no longer be allowed. Breaking the opponent's grip using both hands, failure to immediately engage the opponent at match outset, and delaying match progression through evasive techniques also became prohibited, resulting in a *shido*, or minor violation, for the offender (IJF, 2013). Competitors would only be allowed to grasp their opponents above the belt, marking a fundamental change in the sport. Jigoro Kano, judo's creator, envisioned judo to be a sport in which competitors would spar in both near and far physical proximity and grab one another anywhere possible (Shishida, 2010). Such a rule revision had the potential to fundamentally change competitors' tactics and strategies, particularly in standing techniques. Following the revision, some techniques ceased to be used in competitions. These included *morote-gari*, *kibisu-gaeshi*, *tani-otoshi*, *kuchiki-taoshi*, and *sukui-nage*. The pursuit of a more dynamic sport through new regulations forced competitors to alter their *kumite* tactics if they hoped to score. *Kumite* is a standing technique performed by grabbing the opponent's jacket or body part(s) with one or both hands before initiating an attack (Ito et al., 2014).

The ultimate aim of the 2013 rule revision seemed to be a reduction in the sparring time preceding throwing attempts, which, it was hoped, would lead to increased appeal and a wider audience. As *kumite* is essentially a grabbing strategy, the 2013 rule revision's effects on it were uncertain. Ultimately, the 2013 rule revision did not result in the disappearance of *kumite* from competitions. Hirose et al. (2000) reported the average attacking frequency per one minute of competition in standing position was 1.86 times for the men's 60 kg category and 1.71 times for the women's 48 kg category in the 1997 World Judo Championship. These results suggest the remainder of the time was, to some extent, used in different activities relating to *kumite*, such as competitors considering how to grab their opponent and attempting to gain an advantage over their opponent once *kumite* had commenced.

The authors of this paper take the position that a competitor's *kumite* skills are vital to their success in judo, as it is the primary method in setting up a throw. Hirose et al. (2001) stated that controlling the opponent's balance through *kumite* is fundamental to both men and women competitors' judo abilities. Maekawa et al. (2013, 2014) created a rating scale enabling coaches and managers to determine skill level through methods other than performance in competitions. They did this by querying top level Japanese university judo coaches on factors used in selection for participation in competitions. Two of the twelve factors identified as selection criteria were the assertiveness of the athlete in applying *kumite* and proper *kumite* while practicing. Pedrosa et al. (2015) reported on a sparring activity done by two people, with one of them attempting to grab the other one, who is aggressively attempting to break their grip. This activity is, in effect, focused on bettering the competitors' *kumite* abilities. They found that this exercise was effective in training for international competitions. Given these examples of research performed on different aspects relating to *kumite*, the authors feel that research focused solely on *kumite* tactics should be performed to make more effective and judo more attractive and to improve the sport as a whole.

Effects of competitors' gender on *kumite* have previously been researched. Sanchez et al. (2011) found that handgrip strength of the different podium placement winners was statistically different in women but not in men among the 102 *judokas* (31 women and 71 men) in the 15 to 19 age class competing in the 2008 Junior Championship. Contestants' handgrip strength is essential in grabbing and controlling their opponent and thwarting attempts by the opponent to break loose from the contestants' grip. Kaj-

movic et al. (2014) developed a method of categorizing *kumite* tactics that assists in determining its effect on competition outcomes. They created three broad *kumite* technique classifications: same grip configuration (right and right grip, left and left grip), opposite grip configuration (right vs left grip) and sleeve ends configuration (sleeve grips). Men were found to use the same grip configuration style significantly more than other configurations, while women used the opposite grip configuration significantly more, as seen in matches from the 2008 European Cadets Judo Championship. *Kumite* is an essential component of throw initiation. Therefore, it's logical that contestants would alter their *kumite* strategies to comply with the rule revisions, as opposed to discontinuing their use of *kumite* altogether.

Our research team has been conducting studies on how rule revisions affect *kumite* since the 2009 IJF rule revision was introduced. Tamura et al. (2012) documented a significant increase in attacks where competitors grab their opponent's jacket sleeves and collar with both hands after the IJF 2009 rule revision, which prohibited competitors from initiating an attack by grabbing their opponents below the belt. Ito et al. (2013) reported a statistically significant change in the way that *kata-guruma*, or levering an opponent over the shoulder and throwing, was performed after the 2010 IJF rule revision that also prohibited competitors from touching their opponent below the belt with their hands or arms except in some special cases. It was found that competitors using *kata-guruma* had shifted to grabbing their opponents above the belt, possibly due to the rule revision. We concluded that men competitors were able to adapt to the 2010 rule revision by adjusting their gripping strategies in order to effectively throw their opponents. Ito et al. (2014) conducted a comparative analysis of data taken from competitions before and after the 2013 rule revision, and found a significant increase in attack efficacy when a competitor re-gripped their opponent three times prior throwing them. Throws not preceded by a re-gripping attempt, or preceded by only one or two grabbing attempts, although previously effective, were found to have decreased in attack efficacy.

Through our literature review, we failed to find any research which analyzed the relationship between gender, re-gripping techniques, weight classes, and resulting competition scores. Therefore, the aim of present study was to identify *kumite* techniques that improve competitors' scores in both men and women judo competitions. This analysis will be based on a comparison of score ratios before and after the 2013 rule revision. Findings will be categorized according to gender and weight class of the competitors to understand the results in light of these factors.

2. Material & Methods

2.1 Subjects

In total, 539 contests from the 2012 and 2013 Grand Slam Tokyo and the 2012 and 2013 Grand Slam Paris were analyzed using All Japan Judo Federation Reinforcement Committee Science and Research Department DVDs.

2.2 Analysts

Three analysts took part in this research. One of the analysts was "6th *dan*", and the other two analysts are "7th *dan*". *Dan* is a ranking system indicating comprehensive skill level. In judo, there are

examinations for the ranks from the first-*dan* to the tenth *dan*, with the tenth *dan* being the highest (Ito et al. 2014). Each analyst has at least 40 years of experience in judo practice, and they are all currently active in judo instruction. All data relating to competitors' use of *kumite* were confirmed unanimously by all three analysts as part of the validation process.

2.3 Procedure

Two weight categories each from men and women matches were selected to identify the differences in *kumite* strategies between competitors of different weights ; 66 kg and 100 kg category matches for men and 52 kg and 78 kg category matches for women were chosen for the analyzed data.

Videos of scored throws (*yuko*, *waza-ari*, *ippon*) and the preceding *kumite* were identified in the data and analyzed. In total, 116 scored throws from men's 66 kg and 100 kg category matches and 101 scored throws from women's 52 kg and 78 kg category matches were validated from the 2012 competitions, and 119 scored throws from men's 66 kg and 100 kg category matches and 71 scored throws from women's 52 kg and 78 kg category matches were validated from the 2013 competitions.

Kumite preceding a scored throw was then analyzed to see if re-gripping was attempted, and if so, how many of these attempts were made. This was done according to the method documented by Ito et al. (2015). *Kumite* preceding a scored throw was considered to include a re-gripping attempt if the competitor released their opponent with either hand and grabbed their opponent again with the same hand without a break in sparring. Thus, *kumite* that included more than two instances of a competitor grabbing their opponent in a continuous sequence was categorized as a re-gripping. *Kumite* in which grasping occurred less than three times in a continuous motion was considered to be *kumite* with no re-gripping.

All data were coded using both the revision of judo technical-tactical analysis sheet for throwing techniques developed by Hirose et al. (2000) and MS Excel software.

2.4 Statistical Analysis

Chi-square tests were used to determine differences in the ratio of scored throws between the 2012 and 2013 contests with regards to the variables selected for the study. Analyses on men's and women's competitions were conducted separately. The statistical significance level was set at $p < 0.05$ for all analyses. Statistical Package for Social Science (SPSS) for Windows 21.0 was used to compute the statistics.

3. Results

Scoring ratios significantly increased between the contests when competitors re-gripped their opponents in the 100 kg weight category for men (2012 : 34.5%, 2013 : 53.0% ; $\chi^2=4.148$, $df=1$; $P=0.042$; table 1) and also, in the 66 kg weight category, the score ratio increased (2012 : 21.3%, 2013 : 28.3% ; $\chi^2=0.748$, $df=1$; $P=0.387$; table 1). However, the increase in the men's 66 kg weight category was not significant.

On the other hand, the scoring ratio in the women's 52 kg weight category increased significantly (2012 : 72.9%, 2013 : 88.9% ; $\chi^2=4.059$, $df=1$; $P=0.044$; table 2) when competitors did not re-grip their opponents and also, in the 78 kg weight category, the score ratio increased (2012 : 50.0%,

Table 1. Gripping Techniques in Score Ratio by Weight Category between the Contests

Men						
Category	Contest	<i>n</i>	No re-gripping	Re-gripping	χ^2 (df=1)	<i>P</i>
			<i>n</i> (%)			
66 kg	2012†	61	48 (78.7)	13 (21.3)	.748	.387
	2013‡	53	38 (71.7)	15 (28.3)		
100 kg	2012†	55	36 (65.5)	19 (34.5)	4.148*	.042
	2013‡	66	31 (47.0)	35 (53.0)		

† 2012 Grand Slam Tokyo and Paris for men

‡ 2013 Grand Slam Tokyo and Paris for men

* $P < .05$ **Table 2. Gripping Techniques in Score Ratio by Weight Category between the Contests**

Women						
Category	Contest	<i>n</i>	No re-gripping	Re-gripping	χ^2 (df=1)	<i>P</i>
			<i>n</i> (%)			
52 kg	2012†	59	43 (72.9)	16 (27.1)	4.059*	.044
	2013‡	45	40 (88.9)	5 (11.1)		
78 kg	2012†	42	21 (50.0)	21 (50.0)	3.531	.060
	2013‡	26	19 (73.1)	7 (26.9)		

† 2012 Grand Slam Tokyo and Paris for women

‡ 2013 Grand Slam Tokyo and Paris for women

* $P < .05$

2013 : 73.1% ; $\chi^2=3.531$, df=1 ; $P=0.060$; table 2). However, the increase in the women's 78 kg weight category was not significant.

4. Discussion

The new regulations encouraged competitors to grip their opponent's judo jacket above the belt quickly and aggressively while concurrently carrying out defensive techniques over a smaller area, the upper torso, due to the 2013 rule which bans competitors from grabbing their opponents below the belt.

Comparing to the results of the previous research (Ito et al., 2015) regarding the score ratio of re-gripping techniques between the Grand Slam Tokyo 2012 and the Grand Slam Paris 2013 with the results of this research, the score ratio of re-gripping techniques was different. In previous study, the score ratio of re-gripping techniques significantly increased ($\chi^2=9.696$, df=1) ; however, in this research, the score ratio of re-gripping techniques of 66 kg weight category did not increase significantly ($\chi^2=0.748$, df=1). Because, the result in the previous research was found out from the total data of all the 7 categories ; therefore, in previous research, the score ratio of other than 66kg weight category may have contributed to the significant increase of re-gripping techniques.

The score ratio of the men's 100 kg weight category significantly increased when competitors re-

gripped their opponents. This could be due to the inability of heavier competitors to move as quickly as their counterparts in the 66 kg weight category. Competitors in the 100 kg weight category tend to rely on gripping power rather than their body speed when attacking their opponent. Therefore, they grab each other numerous times with little body movement, resulting in an increase in gripping frequency. Members of the men's 100 kg weight category gripping their opponents with both hands may re-grip their opponents as a preferred and practical method for setting up an effective throw. In addition to this interpretation, this could possibly be attributable to competitors changing their tactics to include feint actions and re-gripping attempts to accommodate for a smaller gripping target area. These changes did not result in improved scores in the 2012 contests (34.5% ; table 1). Perhaps competitors were adjusting their tactics in an effort to surprise their opponents with previously unused tactics. In the 2013 contests, re-gripping resulted in a significant increase in the score ratio in the 100 kg weight category, while *kumite* in which there was no attempt to re-grip resulted in a significant decrease in the respective score ratio. Hirosaki et al. (2001) state that less frequently used *kumite* combinations are most effective when combined with *ashi-waza* (foot techniques). *Ouchi-gari*, *osoto-gari*, *deashi-harai*, *kouchi-gari*, *uchi-mata*, and *kosoto-gari* are those most used among the Japanese competitors. Hirosaki et al. (2001) concluded that unpredictable grips are an effective scoring setup technique. The findings support our conclusion that *kumite* that includes re-gripping and feinting attempts resulted in an increased score ratio.

Analysis of differences between the weight categories shows that the score ratio of throws following *kumite* where re-gripping was not attempted resulted in a significant increase in the score rate of the 52 kg weight category. It was concluded that the competitors' physical attributes could affect their tactics. Tanaka and Tusnoda (2011) reported that a woman's physique generally has less muscle and more fat than a man's. Complicated movements such as re-gripping may result in the competitor losing their balance if they lack high grabbing power and are not able to act at high speeds. Thus, women in the 52 kg weight category tended to attempt to throw their opponent upon initially gripping their opponent to avoid possible failure in successfully carrying out this maneuver. Another possibility is that 52 kg weight category competitors are compelled to attack soon after their initial gripping attempt to avoid being penalized. Regardless of if the threat of penalization is real or not, it's possible that 52 kg weight category competitors believe that re-gripping may be perceived as stalling the match, and so did not attempt to re-grip their opponents as much as their counterparts in the 78 kg weight category.

In summary, physical attributes and the fear of incurring a penalty amongst members of the 52 kg weight category may have caused these differences between the weight categories.

We identified differences in the way the 2013 rule revision affected the sport across men and women's judo and between different weight categories. Although, the study illustrated how re-gripping techniques preceding scoring attempts changed before and after the 2013 rule revision, we did not identify specific target gripping areas. This will be explored in subsequent research.

5. Conclusion

The 2013 rule revision affected the use of *kumite* between men and women in world class judo contests in different ways. The study highlighted the tendency of men in the 100 kg weight category to re-grip their opponents prior to throwing them. This is in contrast to members of the women's 52 kg weight

category, who threw their competitors after the first gripping attempt. Coaches should note these findings and their possible application to training and preparing for competitions, particularly those involving participants from different countries. Furthermore, care should be taken that competition preparation be carried out in light of the athlete's gender and weight.

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Reference

- [1] Boguszewski, D. (2011). Relationship between the Rules and the Way of Fighting Applied by the Top World Male Competitors. *Arch Budo*, Vol. 7, No. 1, pp. 27-32.
- [2] Boguszewski, D., Adamczyk, J.G., Boguszewska, K., Siewierski, M., Blach, W., Bialoszewski, D. (2014). The Attractiveness of Judo Contests as Sports Entertainment. *Arch Budo Sci Martial Art Extreme Sport*, Vol. 10, pp. 31-38.
- [3] Gutiérrez-Sánchez, A., Soria-Dominguez, A., Pérez-Turpin, A.J., Cortell-Tormo, J.M., Suarez-Llorca, C. (2011). Importance of Hand-grip Strength as an Indicator for Predicting the Results of Competitions of Young Judokas. *Arch Budo*, Vol. 7, No. 3, pp. 167-170.
- [4] Hirotsu, T., Aoyagi, O., Takano, H., Suganami, M., Hirose, N., Yokota, S. (1992). Analysis of Grasping and the Effect on Throwing Techniques in the All Japan Weight Class Championships 1989. *Jpn Acad Budo*, Vol. 24, No. 3, pp. 45-54.
- [5] Hirose, N., Suganami, M., Nakamura, M., Takahashi, S. (2001). An Analysis of Throwing Technique Tactics through Effective Throwing and *Kumite*. *J Health and Sports Sci. : Juntendo University*, Vol. 5, pp. 50-60.
- [6] Hirose, N., Suganami, M., Nakamura, M., Takahashi, S. (2000). The Analysis of Judo Competition in Tactics of Throw Techniques-Comparisons between Men and Women Competitors. *J Health and Sports Sci. : Juntendo University*, Vol. 4, pp. 76-87.
- [7] International Judo Federation : IJF Refereeing New rules for the Period from 1/01/2013 to 31/12/2013. Available at : <http://www.ipon.org/> ; accessed on 31.01.2013
- [8] Ito, K., Hirose, N., Nakamura, M., Maekawa, N., Tamura, M., Hirotsu, N. (2013). The Transformation of Technical-Tactical Behaviors for Hand Techniques Used in Attacking Below the Belt after the 2010 International Judo Federation Rule Revision. *Arch Budo*, Vol. 9, No. 1, pp. 1-6.
- [9] Ito, K., Hirose, N., Nakamura, M., Maekawa, N., Tamura, M. (2014). Judo Kumite Pattern and Technique Effectiveness Shifts After the 2013 International Judo Federation Rule Revision. *Arch Budo*, Vol. 10, pp. 1-9.
- [10] Ito, K., Hirose, N., Maekawa, N., Tamura, M., Nakamura, M. (2015). Alterations in Kumite Techniques and the Effects on Score Rates Following the 2013 International Judo Federation Rule Revision. *Arch Budo*, Vol. 11, pp. 87-92.
- [11] Kajmovic, H., Rado, I., Mekic, A., Crnogorac, B., Colakhodzic, E. (2014). Differences in Gripping Configurations During the Execution of Throwing Techniques Between Male and Female Cadets at the European Judo Championship. *Arch Budo*, Vol. 10, pp. 141-146.
- [12] Maekawa, N., Hirose, N., Ito, K., Ishii, K., Koshino, T., Yazaki, R., Tamura, M. (2013). The Method of

- Expert Evaluation of Specific Abilities to Practice Judo — A Proposition of Japanese Top Level University Judo Coaches. *Arch Budo*, Vol. 9, No. 4, pp. 219-224.
- [13] Maekawa, N., Ito, K., Ishi, K., Koshino, T., Yazaki, R., Tamura, M., Hirose, N. (2014). A Study of Validation of Competitive Abilities Scale of Judo Competitors by Using AHP. *Jpn Acad Budo*, Vol. 47, No. 1, pp. 1-8.
- [14] Pedrosa, G.F., Soares, Y.M., Goncalves, R., Couto, B.P., Silva, R.A.D., Szmuchrowski, L.A. (2015). Elaboration and evaluation of judo training means. *Arch Budo*, Vol. 11, pp. 7-16.
- [15] Shishida, F. (2010). Judo's techniques performed from a distance — The origin of Jigoro Kano's concept and it's actualization by Kenji Tomiki — . *Arch Budo*, Vol. 6, No. 4, pp. 165-171.
- [16] Tamura, M., Hirose, N., Nakamura, M., Saitoh, H., Yamauchi, N., Tanaka, C., Suguki, K., Suganami, M. (2012). Changes in Judo *Kumi-te* Tactics According to IJF Rule Revisions. *Jpn Acad Budo*, Vol. 45, No. 2, pp. 143-149.
- [17] Tanaka, S., Tusnoda, N. (2011). Effects of lower limb muscle size on anaerobic power generation capacity in male and female athletes. *Jpn Society of Phys Antropolo*, Vol. 16, No. 3, pp. 141-151.