

[Original article] **Awareness of anti-doping issues among junior high school Judo players and importance of early introduction of anti-doping education and prevention**

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Abstract

At junior Judo camps organized in 2008 and 2009, we gave lectures on anti-doping issues and conducted a survey research regarding awareness of anti-doping among 589 junior high school Judo players (male: 376, female: 213). The results did not differ from our previous study which showed differences in the level of awareness of anti-doping compared among age, years of Judo experience, and living areas, even though the survey years and subjects differed. In addition, the result of a brief survey regarding effects of the anti-doping education was not very satisfactory. Thus, to help young athletes understand properly about the anti-doping issues, anti-doping education program needs to be further developed.

Keywords: Judo, Anti-doping, Attitude survey

1. Introduction

We have been providing workshops about anti-doping issues for junior high school Judo players at junior Judo training camps held by the All Japan Judo Federation and Kodokan Judo Institute every year. We conducted a survey regarding knowledge and awareness of anti-doping issues involving 332 junior high school Judo players at the junior Judo training camp held in October 2008. The results revealed that their level of awareness of anti-doping issues differed by age, gender, years of Judo experience, and area of residence^{1,2)}. However, since this was a cross-sectional study conducted with subjects who attended a workshop in 2008, we need to verify whether the results are specific to these subjects by employing a

different sample.

Thus, this study employed a similar survey involving junior high school Judo players who attended a workshop at the training camp in 2009, and re-examined awareness of anti-doping issues and characteristics among junior high school Judo players. This study also involved a simple analysis of the educational effects of the workshop given at the training camp in 2009.

2. Methods

2.1 Study subjects (Table 1)

The subjects were 589 junior high school Judo players (male: 376, female: 213) who participated in the 12th (16th –

Table 1 The number of study subjects

- a. The number of study subjects according to their area of residence.
 b. The number of study subjects according to age.
 c. The number of study subjects according to years of judo experience.

a	Male	Female	Total	b	Male	Female	Total	c	Male	Female	Total
Hokkaido/Tohoku	45	26	71	13 years old	80	64	144	Less than 6 years	101	64	165
Kanto	56	38	94	14 years old	175	92	267	7-9 years	204	117	321
Chubu	62	37	99	15 years old	121	57	178	More than 10 years	71	32	103
Kinki	58	35	93	Total	376	213	589	Total	376	213	589
Chugoku	47	28	75								
Shikoku	43	21	64								
Kyushu/Okinawa	65	28	93								
Total	376	213	589								

19th October, 2008) and 13th (15th – 18th October, 2009) junior Judo training camps and attended workshops regarding the anti-doping issue. Of the 589 subjects, 12 attended both workshops for two consecutive years. The survey was performed after explaining the study purpose to all subjects.

In 2008, junior Judo training camps were conducted in the following 5 areas: Tohoku/Hokkaido district (Hirosaki City, Aomori Prefecture), Hokushinetsu/Kanto district (Maebashi City, Gunma Prefecture), Kinki/Tokai district (Himeji City, Hyogo Prefecture), Chugoku/Shikoku district (Nankoku City, Kochi Prefecture), and Kyushu district (Yamaga City, Kumamoto Prefecture). In 2009, they were conducted in the following 5 areas: Tohoku/Hokkaido district (Sapporo City, Hokkaido), Hokushinetsu/Kanto district (Fukui City, Fukui Prefecture), Kinki/Tokai district (Gifu City, Gifu Prefecture), Chugoku/Shikoku district (Okayama City, Okayama Prefecture), and Kyushu district (Oita City, Oita Prefecture). Table 1-a shows the number of study subjects according to their area of residence. Tables 1-b and 1-c indicate the number of subjects according to age and years of Judo experience, respectively.

Among the study subjects, two female athletes had experienced a doping test in the past.

2.2 Study methods

Prior to the anti-doping education workshop, the subjects anonymously responded to the questions shown in Table 2.

The subjects were asked to respond “Yes” or “No” to questions 1 to 3, and choose from “Strongly agree”, “Agree”, “Disagree”, and “Strongly disagree” to question 4. After the workshop, the subjects who participated in the camp in 2009 were asked to answer question 4 again. Furthermore, 12 subjects who attended workshops for two consecutive years responded to question 5 by choosing from “Very interested”, “Not very interested”, “Not interested”, and “Indifferent”.

Table 2 Contents of the questionnaire regarding awareness of doping issues

Question 1: Have you ever heard the word ‘doping’ ?
Question 2: Do you know that commercially available drugs contain banned substances ?
Question 3: Do you know that dietary supplements contain banned substances ?
Question 4: Do you agree with the use of banned substances to win an Olympic gold medal ?
Question 5: Have you become interested in anti-doping issues since receiving the workshop conducted in the 2008 camp, and have you been paying attention to medicines ? (*This question was posed to the subjects who had attended the workshop for two consecutive years.)

2.3 Statistical processing

Statistical analysis was done with StatMate III (ATMS Co., Ltd., Tokyo, Japan). One-way analysis of variance was employed to compare the responses to questions 1 to 3 by age, years of Judo experience, and area of residence. Tukey’s multiple comparison test was employed when a significant difference was found. P-values less than 0.05 were considered significant.

3. Results

The rate of subjects who responded “Yes” to question 1 to 3 is compared in charts by age, years of Judo experience, and area of residence.

3.1 Comparison of the survey results by age (Fig. 1)

Of the 589 subjects, 64 (10.9%) responded “I’ve never heard the word ‘doping’ (Fig. 1-a)”. The number decreased with age, but responses to other questions (questions 2 and 3) also

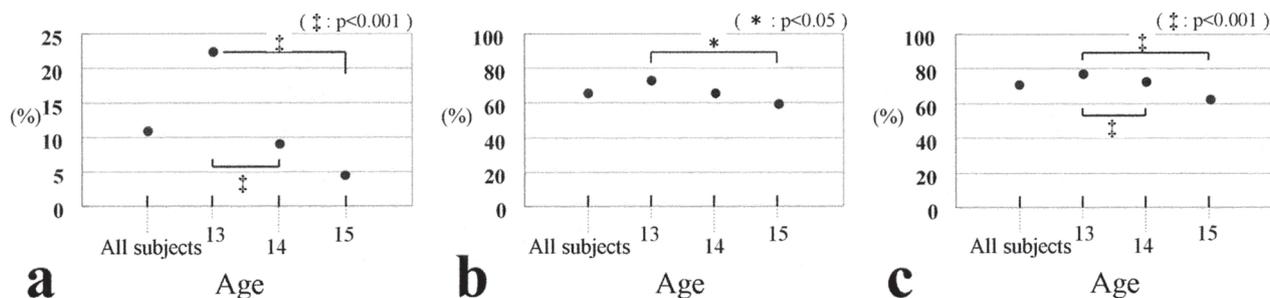


Fig.1 Comparison of the survey results by age

- a. The rate of subjects who had never heard the word 'doping'.
- b. The rate of subjects who did not know that commercially available drugs contain banned substances.
- c. The rate of subjects who did not know that dietary supplements contain banned substances.

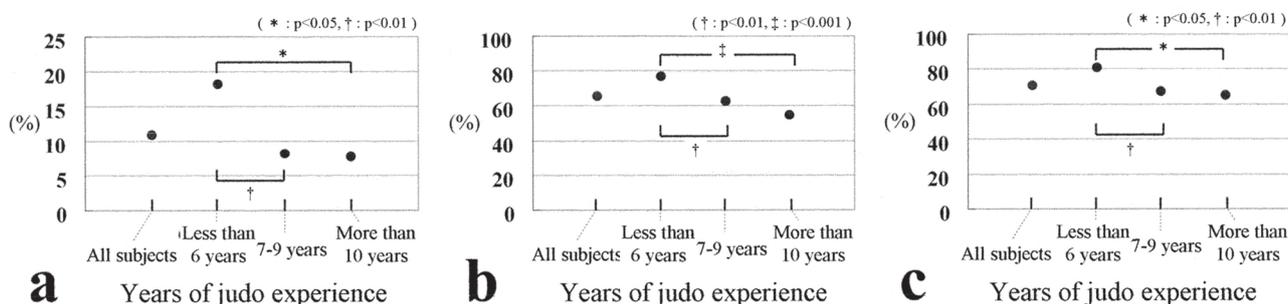


Fig.2 Comparison of the survey results by years of judo experience

- a. The rate of subjects who had never heard the word 'doping'.
- b. The rate of subjects who did not know that commercially available drugs contain banned substances.
- c. The rate of subjects who did not know that dietary supplements contain banned substances.

showed a similar tendency to the results from the previous year, revealing that the sample size does not affect the test results. In comparison among age groups, a significant difference was observed between those 13 (32 subjects, 22.2% (percentage of all 13-year-old subjects)) and 14 years of age (24 subjects, 9.0%) ($p < 0.001$), and between those 13 and 15 years of age (8 subjects, 4.5%) ($p < 0.001$).

Of the 589 subjects, 384 (65.2%) responded "I didn't know that commercially available drugs contain banned substances (Fig. 1-b)", and a significant difference was observed between those 13 (105 subjects, 72.9%) and 15 years of age (105 subjects, 59.0%) ($p < 0.05$).

Of the 589 subjects, 415 (70.5%) responded "I didn't know that dietary supplements contain banned substances (Fig. 1-c)", surpassing the number of subjects who responded "I didn't know that commercially available drugs contain banned substances". When these subjects were compared by age, a significant difference was observed between those 13 (111 subjects, 77.1%) and 14 years of age (193 subjects, 72.3%) ($p < 0.001$) and between those 13 and 15 years of age (111 subjects, 62.4%) ($p < 0.001$).

These results showed a similar tendency to those from the

previous year.

3.2 Comparison of the survey results by years of Judo experience (Fig. 2)

The subjects who responded "I've never heard the word 'doping'. (Fig. 2-a)" were compared by the years of Judo experience, and a significant difference was observed between less than 6 (30 subjects, 18.2%) and 7-9 years (26 subjects, 8.1%) ($p < 0.01$), and between less than 6 and more than 10 years (8 subjects, 7.8%) ($p < 0.05$).

The rate of subjects who responded "I didn't know that commercially available drugs contain banned substances (Fig. 2-b)" also showed a similar tendency to the results from the previous year. When these subjects were compared by years of Judo experience, a significant difference was observed between less than 6 (127 subjects, 77.0%) and 7-9 years (201 subjects, 62.6%) ($p < 0.01$), and between less than 6 and more than 10 years (56 subjects, 54.4%) ($p < 0.001$).

The rate of subjects who responded "I didn't know that dietary supplements contain banned substances (Fig. 2-c)" also showed a decreasing tendency with the years of Judo experience, and a significant difference was observed between

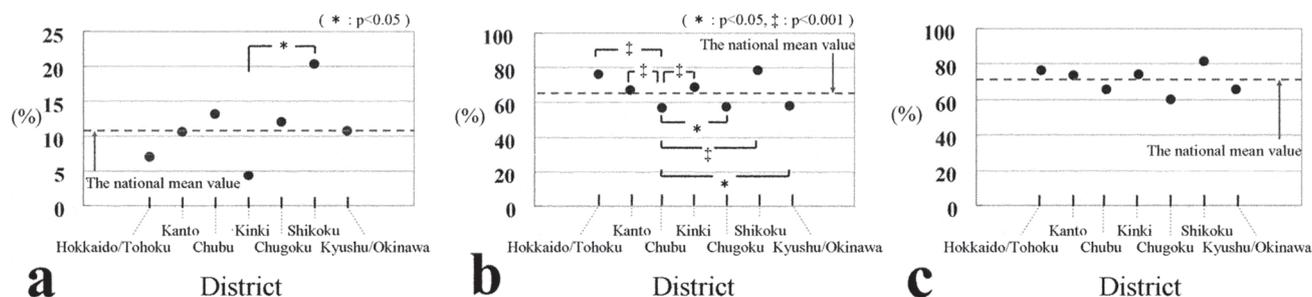


Fig.3 Comparison of the survey results by area of residence

- The rate of subjects who had never heard the word 'doping'.
- The rate of subjects who did not know that commercially available drugs contain banned substances.
- The rate of subjects who did not know that dietary supplements contain banned substances.

less than 6 (133 subjects, 80.6%) and 7-9 years (215 subjects, 67.0%) ($p < 0.01$), and between less than 6 and more than 10 years (67 subjects, 65.1%) ($p < 0.05$).

These results showed a similar tendency to those from the previous year.

3.3 Comparison of the survey results by area of residence

(Fig. 3)

The subjects who responded "I've never heard the word 'doping' (Fig. 3-a)" accounted for 20.3% in Shikoku district (13 subjects), followed by Chugoku district (13 subjects, 13.1%), and Kinki district (4 subjects, 4.3%), showing a similar tendency to the results from the previous year. A significant difference was observed between Shikoku and Kinki districts ($p < 0.05$).

The rate of subjects who responded "I didn't know that commercially available drugs contain banned substances (Fig. 3-b)" was also high in Shikoku district (50 subjects, 78.1%), and low in Chubu district (56 subjects, 56.6%). When these were compared by area of residence, there was a significant difference among Chubu, Tohoku/Hokkaido (54 subjects, 76.1%), Kanto (63 subjects, 67.0%), Kinki (64 subjects, 68.8%), and Shikoku districts ($p < 0.001$), as well as among Chubu, Chugoku (43 subjects, 57.3%), and Kyushu/Okinawa districts (54 subjects, 58.1%) ($p < 0.05$).

The rate of subjects who responded "I didn't know that dietary supplements contain banned substances (Fig. 3-c)" was also high in Shikoku (52 subjects, 81.3%), and low in Chugoku districts (45 subjects, 60.0%), showing no significant difference among area of residence.

3.4 The results for questions 4 (Table 3) and 5 (Table 4)

Most subjects responded "Strongly disagree" (504 subjects, 85.6%) to the question of "Do you agree with the use of banned substances to win an Olympic gold medal?" However, 1 subject strongly agreed, and 2 subjects agreed with the use of

banned substances.

After the anti-doping education workshop, the subjects were asked to answer question 4 again. As the results, 224 out of 225 subjects (87.2%) responded "Strongly disagree", and no subject strongly agreed with the use of banned substances.

The 12 subjects who participated in training camps and attended the workshops for two consecutive years were asked to respond to question 5. Of these subjects, 8 (66.7%) responded that they started to become "interested" in the anti-doping issues after the workshop, and the other 4 subjects responded "Not very interested" or "Indifferent".

Table 3 Survey results from question 4 conducted before and after the anti-doping education workshop

	Before the workshop	After the workshop (data for 2009)
Strongly disagree	504 (85.6%)	224 (87.2%)
Disagree	82 (13.9%)	32 (12.5%)
Agree	2 (0.3%)	1 (0.3%)
Strongly agree	1(0.2%)	0
Total	589	257 (the subjects of the 2009 camp)

Table 4 Survey results from question 5

Very interested	8 (66.7%)
Not very interested	3 (25.0%)
Not interested	0
Indifferent	1 (8.3%)
Total	12

4. Discussion

Our previous study¹⁾ reported that younger or less experienced athletes were less aware of anti-doping issues, and their awareness differed according to their area of residence^{1,2)}. In addition, of the 332 subjects, 1 subject responded “I condone the use of banned substances to win an Olympic gold medal”. This study aimed to examine whether an awareness and problems concerning anti-doping issues among junior high school Judo players will be changed by employing different subjects and a larger sample size.

We conducted a survey and examined the data obtained from the subjects of 2008 and 2009 who had attended the anti-doping workshop at a junior Judo training camp. As the results, the younger and less experienced athletes were more likely to be unaware of anti-doping issues and banned substances contained in commercially available drugs and dietary supplements. These results indicate that the sample size does not affect the tendency regarding the awareness of anti-doping issues among young athletes.

The survey results of 2008 and 2009 were compared for each question, but no significant difference was observed regarding awareness of anti-doping issues. The Beijing Olympic Games were held in 2008, and some athletes tested positive for doping. We speculated that whether or not it is an Olympic year may lead to a difference in attitude toward anti-doping issues among junior high school Judo players; however, the results revealed that this major international event does not affect their awareness. Based on these results, the anti-doping education workshop should be provided at the 2010 and 2011 training camps, and further studies should also be conducted to identify any tendency regarding awareness about anti-doping issues. Since the 589 subjects participated in this study were top junior athletes in Japan, it is unclear whether the results represent the total junior high Judo player population, necessitating further studies using a larger sample size.

As mentioned above, the authors have been conducting anti-doping education for top junior high Judo players, but, like other studies³⁻⁵⁾, this anti-doping education should be provided²⁾ to their supporters (instructors and guardians). Okamoto⁶⁾ reported that young athletes (under 20) can be greatly influenced by their instructor or adult athletes, so that it may be difficult for them to refuse doping if their instructor encourages it. This is a serious ethical and social problem. In addition, considering that there are athletes, coaches, and physicians who exploit doping loopholes and new drugs⁷⁾, doping is not only a problem occurring in the world of sports; education, enlightenment, and enhancement of anti-doping strategies with public cooperation are considered important⁸⁾.

In this study, a few subjects (3/589) responded “I condone the use of banned substances to win an Olympic gold medal.”,

supporting doping violations. This rate seems markedly low, but these subjects are promising young athletes. We are obliged to educate them to prevent doping violations.

Currently, due to the marked advancement of information resources such as the Internet, people can easily obtain information on anti-doping-related matters without participating in the anti-doping education workshop. On the other hand, anyone, even elementary and junior high school students, can buy medicines over the Internet without a prescription⁹⁾. In other words, these children can easily be exposed to information which does not follow anti-doping policies. Thus, appropriate anti-doping education and information retrieval systems should be spread in not only the world of sports but also to the public.

In the 2009 camp, we asked the subjects to respond to question 4 before and after the workshop (Table 3). Three subjects agreed with the use of banned substances before the workshop, but this decreased to 1 subject after the workshop. This seems low; however, considering that the survey was conducted immediately after the workshop, the educational effect was considered unsatisfactory. In addition, among 12 subjects who attended workshops in the 2008 and 2009 camps, 3 subjects responded “Not very interested” in anti-doping issues and paid no attention to medicines, and 1 subject responded “Indifferent” after the workshop conducted in the 2008 camp (Table 4). Yoda et al.¹⁰⁾ reported that there is a significant difference in awareness of anti-doping issues between professional and amateur athletes, suggesting an increased risk of “unintentional doping” in the latter. These subjects are promising young Judo players who may become professional athletes in the future; therefore, the early introduction and enhancement of anti-doping education for young athletes are eagerly awaited.

5. Conclusion

We conducted a survey regarding awareness of anti-doping issues involving junior high school Judo players for two consecutive years; however, the results showed the same tendency in which the level of awareness differs by age, years of experience in Judo, and area of residence, regardless of the year of survey implementation or study subjects. The results indicate the importance of our anti-doping education program, which needs to be improved, expanded, and repeatedly practiced for young athletes to facilitate their proper understanding.

Acknowledgment

We would like to express our gratitude to Profs. Takashi Matsuo and Katsumi Takahashi for their valuable comments on the manuscript. We would also like to thank Seiji Takemura of the All Japan Judo Federation and all those who helped in

conducting the research.

A part of this study was presented at the International Conference on Judo Sports Medicine and Science 2008 and 2009, and the 61st Annual Meeting of Japan Society of Physiological Anthropology. This study was supported by 2009 and 2010 grants from the Kanagawa Institute of Technology.

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