

An Analysis of 'Triathletes' Opinions about the Reasons for Doping Use in Sports Based on Demographic Variables

Cemal Gundogdu

*Sports Management Department, Inonu University Physical Education and Sports School,
44280, Malatya, Turkey*

Mobile: 00905337601239, E-mail: cmlgundogdu@hotmail.com

KEYWORDS Attitude. Doping. Elite Athletes. Triathlon

ABSTRACT This study aimed to determine triathletes' opinions about the reasons for doping use in sports. The study was conducted with 92 participants. The study data was collected using a personal information form and a survey form. The analysis was done using the Chi-square test. The distribution of the participants' opinions about the reasons for doping use showed that 57.6 percent of the participants agreed with the statement, 'Athletes use doping to show a better performance', 56.5 percent agreed with the statement, 'Athletes use doping to be able to overcome the fear of losing,' 70.2 percent agreed with the statement, 'Athletes use doping due to an excessive desire to win', and 52.2 percent agreed with the statement, 'Athletes use doping to be able to gain and maintain a certain social status'.

INTRODUCTION

Presently sports is not only a hobby that people choose to have a good time and live a healthier life, but it is also allows masses of people to establish and build relationships. Sports is also a full-time occupation for some people, and it also earns them financial gain. Since sports involves so many people and brings financial gain, it is inevitable for some athletes to be successful, which makes winning a big goal in sports competitions. Thus, some athletes started to use certain substances, materials and practices, which would help them surpass the performance capacity gained by practice and improve results in competition. Doping is the most important one of these practices since it increases physical power and brings a great advantage in competition (Gencturk et al. 2009; Tarakcioglu 2012).

Doping is commonly known as the use of prohibited substances and practices by athletes to increase their sports performance (Lippi and Guidi 1999). According to the 2004 definition of the World Anti-Doping Agency (WADA), doping is the determination of use or evidence of using a substance in an athlete's body sample, which has the potential to enhance sports performance or poses an unnecessary threat to human health or fair play (Tubitak 2008; Ozturk et al. 2012).

Doping is a problem, which has been bothering the world of competition and sports for a long time (Barroso et al. 2008). Sports involves

athletes' improving their physical and mental performances by natural practices in a framework of ethical rules. However, the use of doping in sports seriously damages athletes physically and psychologically and it may even result in deaths. Moreover, the use of prohibited substances or applications prevents fair competition between athletes, and damages ethical values, which diminishes the image and ideal of champions and record holders (Unal and Unal 2003; Yaman et al. 2003). Considering that sports enhance both physical and mental health, the fact that professional athletes in some elite sports today are using ergogenic supplements and risking death to win shows that they are distant from both athletic ideals and the main goals and objectives of sports (Baysaling 2000).

Drug abuse occurs in all sports and at most levels of competition. Athletic life may lead to drug abuse for a number of reasons, including for performance enhancement, to self-treat otherwise untreated mental illness, and to deal with stressors, such as pressure to perform, injuries, physical pain and retirement from sport. This review examines the effects of different classes of substances used for doping, side-effects of doping, and treatment of affected athletes. There is variable evidence for the performance-enhancing effects and side-effects of the various substances that are used for doping. Drug abuse in athletes should be addressed with preventive measures, education, motivational interviewing and when indicated, pharmacologic interventions (Creado and Reardon 2016).

The factors that lead to doping use include the fact that sports has currently become a competition for business and politics, short-term achievements being desired at any cost, personal and national prestige being involved in competition results, athletes disregarding for the requirements of living an athletic life, astronomical transfer prices for athletes, administrators' lack of information, trainers and athletes' inability to understand its seriousness and forcing athletes to surpass their physical and psychological limits (Imamoglu 1999; Yaman et al. 2003). Petroczi and Aldman (2008) classified the risk factors for doping in three dimensions. These are personal factors (like desire for an increase in performance, reduced self-esteem, intensive anxiety), systematic factors (including motivational climate, the structure of authority) and conditional factors (like the interaction between group members, role models, environmental factors). Some personality factors may inhibit doping use. These factors include strong self-esteem, being aware of laws and a personal inclination to take risks. Morente and Zabala (2013) found that the primary reasons for the use of prohibited substances were performance enhancement, financial gain and the prevention of nutritional deficiencies.

This study aimed to determine triathletes' opinions about the reasons for doping use and compare them by demographic variables.

METHODOLOGY

This is a descriptive study and it was conducted with 92 of 189 athletes who agreed to attend the survey and participated in the Tasucu Triathlon and Istanbul Salcano Triathlon Series, both of which were included in the 2015 schedule of the Turkish Triathlon Federation. The study data was collected using a personal information form and a survey form that included eight statements about the reasons for doping use in sports (Demir 2012; Dincer 2010). The questions on the personal information form were about the athletes' age, gender, education level and the years they had been involved in sports. They were asked to respond either as "I agree" or "I disagree" to statements about doping use. The statements were:

- "Athletes use doping to achieve better performance"

- "Athletes use doping to overcome the fear of losing"
- "Athletes use doping to calm themselves"
- "Athletes use doping due to an excessive desire to win"
- "Athletes use doping due to attractive financial incentives"
- "Athletes use doping to gain and maintain a certain social status"
- "Athletes use doping to have a good standard of living"
- "Athletes use doping to have the support of their clubs."

The Cronbach's alpha value of the questions on the survey was 0.81. The data is presented as figures, percentages and means. The analysis was done using the Chi-square test.

FINDINGS

In this section, the findings of the study data will be presented in tables of figures and percentages. The findings, which showed a statistically significant difference, will be presented in a Chi-square table.

Table 1 indicates that 57.6 percent of the participants agreed with the statement, "Athletes use doping to show a better performance," 56.5 percent agreed with the statement, "Athletes use doping to be able to overcome the fear of losing," 70.2 percent agreed with the statement, "Athletes use doping due to an excessive desire to win," and 52.2 percent agreed with the statement, "Athletes use doping to be able to gain and maintain a certain social status." Of the participating athletes, 84.8 percent disagreed with the statement, "Athletes use doping to calm themselves," 51.1 percent disagreed with the statement, "Athletes use doping due to attractive financial incentives," 69.6 percent disagreed with the statement, "Athletes use doping to have a good standard of living," and 59.8 percent disagreed with the statement, "Athletes use doping to be able to have the support of their clubs."

Tables 2 and 3 show the distribution of triathletes' opinions about the reasons for doping use in sports by age. According to these tables, the athletes who agreed with the statements, "Athletes use doping to achieve better performance" (71.7%), "Athletes use doping to overcome the fear of losing" (66.7%) and "Athletes use doping due to an excessive desire to win" (86.7%) were older than 20 years. The difference

Table 1: The distribution of triathletes' opinions about the reasons for doping use in sports

	<i>I agree</i>		<i>I disagree</i>	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
Athletes use doping to achieve better performance.	53	57.6	39	42.4
Athletes use doping to overcome the fear of losing.	52	56.5	40	43.5
Athletes use doping due to an excessive desire to win.	65	70.7	27	29.3
Athletes use doping to gain and maintain a certain social status.	48	52.2	44	47.8
Athletes use doping to calm themselves.	14	15.2	78	84.8
Athletes use doping due to attractive financial incentives.	45	48.9	47	51.1
Athletes use doping to have a good standard of living.	28	30.4	64	69.6
Athletes use doping to have the support of their clubs.	37	40.2	55	59.8

Table 2: The distribution of triathletes' opinions about the reasons for doping use in sports by age (I)

	Age groups						χ^2	P
	13-19 years		Over 20 years		Total			
	N	%	N	%	N	%		
Athletes use doping to achieve better performance.								
I agree	10	31.2	43	71.7	53	57.6		
I disagree	22	68.8	17	28.3	39	42.4	13.959	0.000
Athletes use doping to overcome the fear of losing								
I agree	12	37.5	40	66.7	52	56.5		
I disagree	20	62.5	20	33.3	40	43.5	7.224	0.007
Athletes use doping to calm themselves.								
I agree	4	12.5	10	16.7	14	15.2		
I disagree	28	87.5	50	83.3	78	84.8	0.281	0.596
Athletes use doping due to an excessive desire to win.								
I agree	13	40.6	52	86.7	65	70.7		
I disagree	19	59.4	8	13.3	27	29.3	21.336	0.000
Total	32	34.8 ¹	60	65.2 ¹	92	100.0		

¹ Line percentage, the others are column percentages

between the age groups was statistically significant ($p < 0.05$). The distribution of the responses to the statement, "Athletes use doping to calm themselves" had a similar distribution by the triathletes' age groups ($p > 0.05$, Table 2).

According to Table 3, a majority of the triathletes who disagreed with the statements, "Athletes use doping due to attractive financial incentives" (81.3%), "Athletes use doping to have a good standard of living" (84.4%) and "Athletes use doping to have the support of their clubs" were between 13 and 19 years of age ($p < 0.05$). More than half of the triathletes disagreed with the statement, "Athletes use doping to gain and maintain a certain social status" (52.2%). Of the triathletes who disagreed with this statement, 66.7 percent were older than 20 years ($p < 0.05$).

Tables 4 and 5 present the distribution of triathletes' opinions about the reasons for doping use in sports by gender. Table 4 shows that the

responses did not indicate a significant difference between male and female triathletes ($p > 0.05$).

According to Table 5, 51.1 percent of the triathletes disagreed with the statement, "Athletes use doping due to attractive financial incentives." Of the athletes who gave this response, eighty percent were female, and the difference here was significant ($p < 0.05$).

The responses to the other statements about doping use had similar distributions by gender ($p > 0.05$). These are presented in Tables 6 and 7. Table 6 indicates that 57.5 percent of the participants agreed with the statement, "Athletes use doping to achieve better performance," 56.5 percent agreed with the statement, "Athletes use doping to overcome the fear of losing," and 70.7 percent agreed with the statement, "Athletes use doping due to an excessive desire to win." The distribution of these responses had a significant distribution by education level. The group who created this difference comprised the athletes

Table 3: The distribution of triathletes' opinions about the reasons for doping use in sports by age (II)

	Age groups						χ^2	P
	13-19 years		Over 20 years		Total			
	N	%	N	%	N	%		
Athletes use doping due to attractive financial incentives								
I agree	6	18.8	39	65.0	45	48.9	17.865	0.000
I disagree	26	81.3	21	35.0	47	51.1		
Athletes use doping to gain and maintain a certain social status								
I agree	8	25.0	40	66.7	48	52.2	14.520	0.000
I disagree	24	75.0	20	33.3	44	47.8		
Athletes use doping to have a good standard of living								
I agree	5	15.6	23	38.3	28	30.4	5.083	0.024
I disagree	27	84.4	37	61.7	64	69.6		
Athletes use doping to have the support of their clubs								
I agree	6	18.8	31	51.7	37	40.2	9.405	0.002
I disagree	26	81.3	29	48.3	55	59.8		
Total	32	34.8 ¹	60	65.2 ¹	92	100.0		

¹ Line percentage, the others are column percentages

Table 4: The distribution of triathletes' opinions about the reasons for doping use in sports by gender (I)

	Gender						χ^2	P
	Female		Male		Total			
	N	%	N	%	N	%		
Athletes use doping to achieve better performance								
I agree	12	48.0	41	61.2	53	57.6	1.298	0.255
I disagree	13	52.0	26	38.8	39	42.4		
Athletes use doping to overcome the fear of losing								
I agree	12	48.0	40	59.7	52	56.5	1.014	0.314
I disagree	13	52.0	27	40.3	50	43.5		
Athletes use doping to calm themselves								
I agree	5	20.0	9	13.4	14	15.2	0.609	0.435
I disagree	20	80.0	58	86.6	78	84.8		
Athletes use doping due to an excessive desire to win								
I agree	14	56.0	51	76.1	65	70.7	3.554	0.059
I disagree	11	44.0	16	23.9	27	29.3		
Total	25	27.2 ¹	67	72.8 ¹	92	100.0		

¹ Line percentage, the others are column percentages

who were middle school or high school students ($p < 0.05$).

Table 7 indicates that triathletes' responses to the statements, "Athletes use doping due to attractive financial incentives," "Athletes use doping to gain and maintain a certain social status," "Athletes use doping to have a good standard of living," and "Athletes use doping to have the support of their clubs" differed significantly by educational level ($p < 0.05$). This difference was caused by the athletes who were middle school and high school students.

Tables 8 and 9 present the distribution of triathletes' opinions about the reasons for doping use in

sports by the number of years they had been involved in sports. Table 8 shows a significant difference according to the number of years of involvement in sports created by the responses given to the statements, "Athletes use doping to achieve better performance," "Athletes use doping to overcome the fear of losing" and "Athletes use doping due to an excessive desire to win" ($p < 0.05$). The athletes who agreed with these statements had been involved in sports for six years or more.

Table 9 shows that the responses to the statements, "Athletes use doping due to attractive financial incentives," "Athletes use doping to gain and maintain a certain social status," "Ath-

Table 5: The distribution of triathletes' opinions about the reasons for doping use in sports by gender (II)

	Gender						χ^2	P
	Female		Male		Total			
	N	%	N	%	N	%		
Athletes use doping due to attractive financial incentives								
I agree	5	20.0	40	59.7	45	48.9	11.484	0.001
I disagree	20	80.0	27	40.3	47	51.1		
Athletes use doping to gain and maintain a certain social status							3.599	0.058
I agree	9	36.0	39	58.2	48	52.2		
I disagree	16	64.0	28	41.8	44	47.8		
Athletes use doping to have a good standard of living							0.040	0.842
I agree	8	32.0	20	29.9	28	30.4		
I disagree	17	68.0	47	70.1	64	69.6		
Athletes use doping to have the support of their clubs							0.254	0.614
I agree	9	36.0	28	41.8	37	40.2		
I disagree	16	64.0	39	58.2	55	59.8		
Total	25	27.2 ¹	67	72.8 ¹	92	100.0		

¹ Line percentage, the others are column percentages

Table 6: The distribution of triathletes' opinions about the reasons for doping use in sports by education level (I)

	Education Level								χ^2	P
	High school student		Uni- versity Student		Post-graduate		Total			
	N	%	N	%	N	%	N	%		
Athletes use doping to achieve better performance										
I agree	11	32.4	12	75.0	30	71.4	53	57.6	14.147	0.001
I disagree	23	67.6	4	25.0	12	28.6	39	42.4		
Athletes use doping to overcome the fear of losing										
I agree	12	35.3	12	75.0	28	66.7	52	56.5	10.216	0.006
I disagree	22	64.7	4	25.0	14	33.3	40	43.5		
Athletes use doping to calm themselves										
I agree	3	8.8	4	25.0	7	16.7	14	15.2	2.333	0.312
I disagree	31	91.2	12	75.0	35	83.3	78	84.8		
Athletes use doping due to an excessive desire to win										
I agree	15	44.1	14	87.5	36	85.7	65	70.7	18.331	0.000
I disagree	19	55.9	2	12.5	6	14.3	27	29.3		
Total	34	37.0 ¹	16	17.3 ¹	42	45.7 ¹	92	100.0		

¹ Line percentage, the others are column percentages

letes use doping to have a good standard of living” and “Athletes use doping to have the support of their clubs” differed significantly by the participants’ number of years of involvement in sports ($p < 0.05$). The athletes who disagreed with these statements had been involved in sports for five years or less.

DISCUSSION

In this section, the researcher compares the triathletes’ opinions about the reasons for dop-

ing use by age, gender, education level and number of years of involvement in sports and discuss this comparison and the relevant literature.

Technological developments have made sports equipments and fields more suitable for high performance. Moreover, societies getting close to each other, increased leisure time and levels of wellbeing allow more people to get interested in sports both as athletes and spectators (Yoncalik and Gundogdu 2007). Sports has become a business sector. It also brings finan-

Table 7: The distribution of triathletes' opinions about the reasons for doping use in sports by education level (II)

	Education Level								χ^2	P
	High school student		University Student		Post-graduate		Total			
	N	%	N	%	N	%	N	%		
Athletes use doping due to attractive financial incentives										
I agree	7	20.6	9	56.3	29	69.0	45	48.9		
I disagree	27	79.4	7	43.8	13	31.0	47	51.1	18.075	0.000
Athletes use doping to gain and maintain a certain social status										
I agree	7	20.6	11	68.8	30	71.4	48	52.2		
I disagree	27	79.4	5	31.3	12	28.6	44	47.8	21.596	0.000
Athletes use doping to have a good standard of living										
I agree	4	11.8	4	25.0	20	47.6	28	30.4		
I disagree	30	88.2	12	75.0	22	52.4	64	69.6	11.679	0.003
Athletes use doping to have the support of their clubs										
I agree	4	11.8	8	50.0	25	59.5	37	40.2		
I disagree	30	88.2	8	50.0	17	40.5	55	59.8	18.596	0.000
Total	34	37.0 ¹	16	17.3 ¹	42	45.7 ¹	92	100.0		

¹ Line percentage, the others are column percentages**Table 8: The distribution of triathletes' opinions about the reasons for doping use in sports by the number of years they had been involved in sports (I)**

	Sport Age						χ^2	P
	1-5 years		6 years and over		Total			
	N	%	N	%	N	%		
Athletes use doping to achieve better performance								
I agree	19	43.2	21	75.0	40	55.6	7.016	0.008
I disagree	25	56.8	7	25.0	32	44.4		
Athletes use doping to overcome the fear of losing								
I agree	20	45.5	21	75.0	41	56.9	6.092	0.014
I disagree	24	54.5	7	25.0	31	43.1		
Athletes use doping to calm themselves								
I agree	6	13.6	4	14.3	10	13.9	0.006	0.938
I disagree	38	86.4	24	85.7	62	86.1		
Athletes use doping due to an excessive desire to win								
I agree	24	54.5	26	92.9	50	69.4	11.836	0.001
I disagree	20	45.5	2	7.1	22	30.6		
Total	44	61.1 ¹	28	38.9 ¹	72	100.0		

¹ Line percentage, the others are column percentages.

*Those whodid not give a response were not included in the evaluation

cial gain to both of athletes and trainers, and the desire to win has become an overriding ambition. All these factors encourage athletes to try every way to win. As a profession, sports can apply even stronger pressure than athletes' innate desire to win. Analysis of the participating triathletes' opinions reveals that more than half of the triathletes agreed with the statements, "Athletes use doping to achieve better perfor-

mance," "Athletes use doping to overcome the fear of losing," "Athletes use doping due to an excessive desire to win," and "Athletes use doping to gain and maintain a certain social status" (Table 1). A study by Demir (2012) found that half of the trainers believed that athletes used doping due to an excessive desire to win. In a study by Ozel (1999), more than half of the athletes stated that doping was used to enhance

Table 9: The distribution of triathletes' opinions about the reasons for doping use in sports by the number of years they had been involved in sports (II)

	Sport Age						χ^2	P
	1-5 years		6 years and over		Total			
	N	%	N	%	N	%		
Athletes use doping due to attractive financial incentives								
I agree	13	29.5	20	71.4	33	45.8	12.090	0.001
I disagree	31	70.5	8	28.6	39	54.2		
Athletes use doping to gain and maintain a certain social status								
I agree	14	31.8	20	71.4	34	47.2	10.772	0.001
I disagree	30	68.2	8	28.6	38	52.8		
Athletes use doping to have a good standard of living								
I agree	7	15.9	12	42.9	19	26.4	6.397	0.011
I disagree	37	84.1	16	57.1	53	73.6		
Athletes use doping to have the support of their clubs								
I agree	10	22.7	16	57.1	26	36.1	8.785	0.003
I disagree	34	77.3	12	42.9	46	63.9		
Total	44	61.1 ¹	28	38.9 ¹	72	100.0		

¹ Line percentage, the others are column percentages.

^{*}Those who did not give a response were not included in the evaluation

performance. In a study by Eroç (2007), two-third of the athletes said that doping was used to achieve better performance, and approximately three-fourths of them said that it was used due to an excessive desire to win. A study conducted in the US with 563 athletes received interesting responses from the participants about the reasons for doping use. Of the athletes who used doping, ninety-four percent said that they believed it was the only path to improvement, power and success (Baysaling 2000). Alaranta et al. (2006) conducted a study in Finland with 446 athletes and found that more than ninety percent of the athletes believed prohibited substances and practices had performance-enhancing effects. The results of a the study from University of Mainz (JGI) the University of Tübingen showed that thirteen percent of 3,000 amateur triathletes have received the illegal and banned doping products in the twelve months (Verlag 2014). Between 2009 and 2015, a study was conducted in the UK. This study was applied on 49 rugby players. This study stated the role of the social and cultural conditions in the doping use of fifty percent of the young players under the 25, which competed in sub-elite level (Whitaker and Backhouse 2016). The relevant research indicates that doping is preferred since it was seen as a shortcut to strength and success. For athletes, winning has always been the most important phenomenon. Some athletes are

so full of ambition to win that they think losing would be kind of an end for them. In a sense, athletes think that success will bring fame and fame will bring them money, which leads them to use doping substances (Tarakcioglu 2012; Tubitak 2008; Yoncalik and Gundogdu 2007). In this study, more than a half of the triathletes disagreed with the statements, "Athletes use doping to calm themselves," "Athletes use doping due to attractive financial incentives," "Athletes use doping to have a good standard of living," and "Athletes use doping to have the support of their clubs" (Table 1). In the study by Eroç (2007), two-thirds of the athletes said that doping was used to attain a better standard of living, more than a half of them said it was used to have the support of clubs, and a majority of them said that it was used due to attractive financial incentives. Gencturk et al. (2009) conducted a study with 76 national wrestlers, asking the athletes about the reasons for doping and found that 40.8 percent of the participants said it was used to win, while 56.6 percent said that it was used to calm down, concentrate, win and overcome anxiety.

An analysis of triathletes' opinions about the reasons for doping use in sports by age indicated that there were significant differences in all statements except, "Athletes use doping to calm themselves" (Tables 2 and 3). The participants under the age of 20 mainly disagreed with these

statements, while those older than 20 said that they agreed. The author's interpretation of this finding is that athletes have a positive attitude towards doping use as they get older due to worries about finally achieving success, while younger athletes have more strict attitudes towards drug use.

An analysis of the distribution of triathletes' opinions about doping use in sports by gender (Tables 4 and 5) indicated that there was a significant difference for the statement, "Athletes use doping due to attractive financial incentives." The responses to the other statements had a similar distribution for males and females. In a study by Demir (2012), the distribution of trainers' level of knowledge about doping by gender did not indicate a statistical difference. Bloodworth et al. (2012) conducted a study with 403 young athletes and determined that males were more tolerant of performance-enhancing substances than females.

An analysis of the distribution of the participating triathletes' opinions about the reasons for doping use by the triathletes' education level (Tables 6 and 7) revealed that the responses to all statements except, "Athletes use doping to calm themselves," differed significantly. This difference was caused by the athletes who were middle school and high school students. These athletes disagreed with the statements in question. Similarly, Dincer's study (2010) found athletes who were high school students disagree with statements about the reasons for doping use.

A comparison of the participating triathletes' opinions about the reasons to use doping in sports by their number of years of involvement in sports (Tables 8 and 9) showed that there were significant differences in the responses to all statements except, "Athletes use doping to calm themselves." Athletes who had been involved in sports for six years or longer agreed with these statements. An adverse interpretation of the analysis results indicated that athletes with fewer years of being involved in sports mainly disagreed with these statements. This finding is consistent with the results of the comparison by the athletes' age and education level. Dincer's study (2010) found that athletes' opinions about the reasons for doping use in sports did not differ by the number of years of involvement in sports.

CONCLUSION

In conclusion, the distribution of athletes' opinions about the reasons for doping use in sports showed that more than a half of the athletes agreed with the statements:

- "Athletes use doping to enhance their performance,"
- "Athletes use doping to overcome the fear of losing,"
- "Athletes use doping due to an excessive desire to win," and
- "Athletes use doping to gain and maintain a certain social status."

On the other hand, a majority of the athletes disagreed with the statements:

- "Athletes use doping due to attractive financial incentives,"
- "Athletes use doping to have a good standard of living," and
- "Athletes use doping to have the support of their clubs."

This analysis of triathletes' opinions about the reasons for doping use in sports by demographic variables showed that there were significant differences by age, gender, education level and the number of years being involved in sports.

RECOMMENDATIONS

It is important for sports to be honorable and fair, and that success be earned honestly. The recent large-scale doping scandals in sports show that this issue has an organized social dimension. For this reason, the author suggests that education about doping for sports administrators, trainers and athletes be considered, athletes be administered doping tests more frequently, and legal arrangements and sanctions against those who sell doping products or make others use them be increased to make the struggle against doping more effective.

REFERENCES

- Alaranta A, Alaranta H, Holmila J, Palmu P, Pietila K, Helenius I 2006. Self-reported attitudes of elite athletes towards doping: differences between types of sport. *Int J Sports Med*, 27(10): 842-846.
- Barroso O, Mazzoni I, Rabin O 2008. Hormone abuse in sports: The anti-doping perspective. *Asian J Androl*, 10(3): 391-402.
- Baysaling O 2000. *Doping in Sport in All Aspects. Losses, and Cures Doping, Anti-doping*. Istanbul: Ilpress Printing and Publishing.

- Bloodworth AJ, Petroczi A, Bailey R, Pearce G, McNamee MJ 2012. Doping and supplementation: The attitudes of talented young athletes. *Scandinavian Journal of Medicine & Science in Sports*, 22(2): 293-301.
- Creado S, Reardon C 2016. The sports psychiatrist and performance-enhancing drugs. *International Review of Psychiatry*, 1-8.
- Demir A 2012. *Determination of Flat Water and Running Water Canoe Coaches Thought and Knowledge Level About Doping in Turkey*. Master's Thesis. Sanliurfa: Harran University.
- Dincer N 2010. *The Determining of Knowledge Level Related to Doping in Elite Athletes*. Master's Thesis. Konya: Selcuk University.
- Eroz MF 2007. *Determination of Sportsmen Knowledge Level About Doping and Ergogenic Help and Views Who Have Done Athleticism, Wrestling, Judo and Barbell at National Level*. Master's Thesis. Kutahya: Dumlupinar University.
- Gencturk G, Colakoglu T, Demirel M 2009. A research to determine the intelligence level of national sportsman for doping (wrestling sample). *Nigde University Journal of Physical Education and Sport Science*, 3(3): 213-221.
- Imamoglu O 1999. Doping in sports. *Ondokuz Mayıs University Journal of Education Faculty*, 6: 93-96.
- Lippi G, Guidi G 1999. Doping and sports. *Minerva Med*, 90(9): 345-357.
- Morente SJ, Zabala M 2013. Doping in sport: A review of elite athletes' attitudes, beliefs, and knowledge. *Sports Med*, 43(6): 395-411.
- Ozel R 1999. *To Investigate the Prevalence of Doping Methods and in Weightlifting*. Master's Thesis. Ankara: Gazi University.
- Ozturk EG, Suveren S, Colakoglu T 2012. Doping in Turkey, assessment of knowledge level of players about doping (handball study case). *International Human Science Journal*, 1(1): 249-260.
- Petroczi A, Aldman E 2008. Psychological drivers in doping: The life-cycle model of performance enhancement. *Substance Abuse, Treatment, Prevention, and Policy*, 3: 7.
- Tarakcioglu S 2012. *Gene Doping in the Context of Ethics in Sports*. Master's Thesis. Izmir: Ege University.
- Tubitak 2008. Doping. *Science and Technology Magazine*. September 4, P. 126.
- Unal M, Unal DO 2003. The history of doping in sport. *Istanbul Medical School Journal*, 66(4): 261-267.
- Verlag GT 2014. Triathlon sport-doping and brain doping. *Epub*, 28(1): 4.
- Whitaker L, Backhouse S 2016. Doping in sport: An analysis of sanctioned UK rugby union players between 2009 and 2015. *J Sports Sci*, 31: 1-7.
- Yaman M, Herguner G, Yaman C 2003. Historical development and current dimension of work in the fight against doping with the use of high performance athletes doping. *Sakarya Education Faculty Journal*, 6: 360-385.
- Yoncalik O, Gundogdu C 2007. Doping as a morality problem in the elite sport. *East Anatolian Research Journal*, 6(1): 128-134.

Paper received for publication on October 2015
Paper accepted for publication on December 2016