

**The Traditional Sport of Turks:  
An Evaluation of Hydration Knowledge of Oil Wrestlers**

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**ABSTRACT**

**Objectives:** This study aimed at evaluating the level of knowledge of oil wrestlers about fluid intake and hydration.

**Methods:** The study covered a total of 188 licensed male athletes. The athletes were given a questionnaire in a face to face interview. The 17-item questionnaire contained some personal questions as well as questions that athletes can give answers as true or false in order to assess their level of knowledge about hydration. In statistical analysis of data, SPSS was used, and frequency analysis and arithmetic average values were calculated and t test was used for relevant measurements.

**Results:** The amount of water consumed by athletes during the day of competition was found to be about  $4.18 \pm 0.96$  L/day. A significant difference was observed in water consumptions of athletes according to the answers given to the question: "Athletes should begin each training session or competition well hydrated" ( $p < 0.05$ ). The amount of water that athletes who answered "true" to this question stated consuming during the day of competition is higher than that of the athletes answered "false" to the question. Majority of athletes (62.8%) stated that they did not receive any information from anyone concerning fluid intake while 19.1% expressed they consult to their trainers and 6.4% to their friends. It was found that athletes gave correct answers to 70.6% of all information questions, nevertheless they had a lack of knowledge concerning the methods they apply in determining their sports drinks (questions: 12, 13 and 14) and hydration situations (questions: 1 and 3).

**Conclusion:** In oil wrestling, fluid loss becomes more and more important as competition time extends and the competitions take place outdoors in hot and humid environments. This study displayed that oil wrestlers did not have an insufficient level of knowledge about fluid intake. Nevertheless, they had some shortcomings about sports drinks and receiving information and knowledge from reliable sources.

**Keywords:** Wrestling, Oil Wrestling, Hydration, Fluids.

**INTRODUCTION**

**B**ody temperature increases during physical activity. Athletes need to evacuate the increasing heat from their bodies in order to continue their activity efficiently. One of the basic means of evacuation of surplus heat from body is perspiration (Benardot, 2012; Fink et al., 2006). During the exercise, body loses

water (loss of water in hot and humid environments:  $\sim 1-2$  L/h) and electrolytes due to the increased perspiration; and if the daily fluid intake is less than the loss of fluid, it leads to dehydration (negative water balance) (Fink et al., 2006; Sawka et al., 2005; Rehrer, 2001; Casa et al., 2005; Manore and Thompson, 2000; Günay et al., 2010).

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Dehydration is a situation that leads to a temperature increase, temperature fatigue and an increase in cardiovascular stress during exercise and results in a decrease in performance. An exercise that leads to loss of body weight approximately by 2% results in more increase in heart beat rate and body temperature than an exercise with a similar intensity conducted in a hydrated situation does (Fink et al, 2006; Benardot, 2000; Howley and Franks, 1997). The situation of hydration/dehydration that is critically important for athletes in particular should be observed on a continuous basis. Although the most basic method is to observe the change in body weight before and after the exercise, urine colour, urine specific gravity (USG) and urine osmolality (Uosm) give us information about hydration (Fink et al, 2006; Grandjean and Campbell, 2004; Kavouras et al., 2012).

One of the sports branches that require continuous measurement of body weight is wrestling. Particularly in recent years, some unhealthy weight losing methods have often been applied to stop gaining weight, which leads to a serious risk of dehydration (Fink et al, 2006).

Oil wrestling not only requires intelligence and agility but also is a traditional Turkish sport in pursuit of conserving non-material values. It's a branch of sports in which wrestlers wear only a pair of leather pants called kispet and nothing on top (Başaran and Gürcüm, 2011) and lubricate their whole body with olive oil, and takes strength and power.

Duration of competition varies according to age category. In adults, it is between 20 and 30 minutes, and the scoring duration is 10 minutes. Depending on the deuce in the scoring, another session starts and the competition continues until one of the wrestlers gets a point irrespective of the time (<http://www.tgf.gov.tr/yagli-gures-musabaka-talimati-26-09-2012/>). Therefore, dehydration risk

increases when the duration of competition extends.

When we look at the durations of the final competitions in major oil wrestling events in recent years, we see that competitions lasted more than an hour. Furthermore, the outdoor nature of wrestling competitions makes wrestlers subject to hot and humid climate conditions and extended durations of competitions result in an increase in dehydration risk and fluid needs of wrestlers.

This study aimed at evaluating the level of knowledge of oil wrestlers about hydration and defining their education needs about fluid intake in oil wrestling where dehydration risk is higher.

## **METHODS**

### ***Participants***

A total of 188 licensed male athletes actively doing oil wrestling participated into this study. The number of participants, which was originally 205, was reduced to 188 due to the fact that some participants missed some answers in the questionnaire.

### ***Study procedure***

Athletes received a questionnaire in order to define their level of knowledge about their fluid intake and hydration. Questionnaires were given to the athletes by the researcher in face-to-face interviews. The 17-item questionnaire (Geijer et al., 2009) contained questions that athletes can give answers as true or false in order to assess their level of knowledge about hydration as well as some personal questions (age, body weight, height, their sports age, daily water consumptions, sources of information about fluid intake).

The researcher contacted with athletes during their competition period. Based on their declarations about their body height and weight, their Body Mass Index (BMI) (kg/m<sup>2</sup>) values were calculated.

**Statistical Analysis**

In data analysis, SPSS 18.0 was used. Frequency distribution and arithmetic averages were calculated, and t test was used for relevant measurements.

**RESULT**

The study covered a total of 188 male athletes. Averages of age, body weight, body height and sports age of athletes are 27.8±6.8 (18-45) years, 85.6±17.1 (45-135) kg, 1.76±8.06 (150-195) cm and 14.06±6.2 (4-30) years respectively. According to the BMI classification, 43.1% of participants (81) were overweight, 30.3% (57) were normal weight and 26.6% (50) were obese. 2.7% (5) of participants were primary school graduates while 35.1% (66) were high school graduates and 51.6% (97) with an

undergraduate degree and 10.6% (20) with a graduate degree.

The amount of water consumed by athletes during the day of competition was found to be about 4.18±0.96 L/day in average. A significant difference was observed in water consumptions of athletes according to the answers given to the question: “Athletes should begin each training session or competition well hydrated” (p<0.05). The amount of water that athletes who answered “true” to this question stated consuming during the day of competition (4.2±0.95 L/day) is higher than that of the athletes answered “false” to the question (3.6±1.0 L/day).

Majority of athletes (62.8%) stated that they did not receive any information from anyone concerning fluid intake while 19.1% expressed they consult to their trainers and 6.4% to their friends (Table 1).

**Table 1:** Source of information for athletes about fluid intake

Source of information	n	%
Friend	12	6.4
Dietitian/Nutritionist	4	2.1
Trainer	36	19.1
Physician	11	5.9
Nobody	118	62.8
Book	7	3.7
Total	188	100.0

Majority of athletes (95.2%) stated that the statement “*Thirst is a timely indicator that an athlete needs to drink fluids*” was true and failed to give the expected answer (Table II). The percentages of athletes who said “*true*” (47.9%) and “*false*” (52.1%) to the statement “*Comparing body weight before and after training/competition is not a useful way to determine how much fluid needs to be consumed*” are very close to

each other. The percentage (69.1%) of those replying “*true*” to the statement “*Post exercise fluid replacement should be approximately 150% of the fluid lost during activity*” is high. It was found out that the answers of majority of participants to questions concerning sports drinks (questions 12, 13 and 14) were not the expected ones (Table 2).

**Table 2:** Answers of athletes to questions concerning fluid intake

Survey Questions	True		False		Total	
	n	%	n	%	n	%
<b>1.Thirst is a timely indicator that an athlete needs to drink fluids (False)</b>	179	95.2	9	4.8	188	100.0
2.Monitoring urine color is an effective way for an athlete to determine if he/she is dehydrated (True)	151	80.3	37	19.7	188	100.0
3.Comparing body weight before and after training/competition is not a useful way to determine how much fluid needs to be consumed (False)	90	47.9	98	52.1	188	100.0
4.Dehydration improves performance. (False)	15	8.0	173	92.0	188	100.0
5.Dehydration increases the risk of experiencing heat-related illnesses, such as heat cramps, heat exhaustion, etc (True)	162	86.2	26	13.8	188	100.0
6.Exercise or physical activity in hot and humid conditions has no effect on dehydration (False)	36	19.1	152	80.9	188	100.0
7.Athletes should begin each training session or competition well hydrated (True)	170	90.4	18	9.6	188	100.0
8.2-3 hours prior to exercise an athlete should aim to consume: 17-20 fluid ounces (500-600 ml) of fluid (True)	162	86.2	26	13.8	188	100.0
9.10-20 minutes before competition an athlete should aim to consume:7-10 fluid ounces (200-300 ml) of fluid (True)	129	68.6	59	31.4	188	100.0
10.Fluid replacement during exercise should, at the very minimum, prevent dehydration of greater than 2% body weight reduction (True)	144	76.6	44	23.4	188	100.0
<b>11.Post exercise fluid replacement should be approximately 150% of the fluid lost during activity (False)</b>	130	69.1	58	30.9	188	100.0
<b>12.During endurance training or competition that exceeds more than 50 minutes, water is equally as effective as a sports drink containing carbohydrates and electrolytes (False)</b>	136	72.3	52	27.7	188	100.0
<b>13.Sports drinks, if being ingested during exercise, should have a carbohydrate concentration of at least 8% (False)</b>	148	78.7	40	21.3	188	100.0
<b>14.The main form of carbohydrate in a sports drink should be fructose (False)</b>	146	77.7	42	22.3	188	100.0
15.Sodium should be included in fluid replacement beverages if the physical activity lasts 4 or more hours (True)	137	72.9	51	27.1	188	100.0
16.During recovery, athletes should aim to re-hydrate within a 2 hour period after exercise (True)	172	91.5	16	8.5	188	100.0
17.The addition of sodium and carbohydrate to the re-hydration beverage (after exercise) will speed re-hydration and replenish glycogen stores, respectively (True)	158	84.0	30	16.0	188	100.0

## **DISCUSSION**

The fact that 2.7% (5) of participants were primary school graduates while 35.1% (66) were high school graduates and 51.6% (97) with an undergraduate degree and 10.6% (20) with a graduate degree reveals that oil wrestling is preferred and shown interest by individuals from different education levels. The issue of hydration becomes more important as the age of starting this sport is young (11 years), and oil wrestling requires strength and power, taking place in hot and humid environments, resulting in a high loss of fluid.

In wrestling as a sport with weight restrictions, dehydration is the first and foremost method to lose weight and is accompanied by many risks (decreased cognitive functions and performance and etc...) and poses a serious threat for health (Kiningham and Gorenflo, 2001; Weber et al., 2013; Artioli et al., 2010). A study on wrestlers reported that wrestlers reduced fluid and food intake in two days prior to completion and even dehydration percentage reached up to 5% (Lingor and Olson, 2010). It was also reported that three wrestlers lost their lives due to fast weight loss in 1997 (Centres for Disease Control and Prevention (CDC), 1998). It is stated that sports success and the degree of success do not exhibit any difference in athletes applying fast weight losing methods (Kiningham and Gorenflo, 2001).

The amount of water consumed by athletes during the day of competition was found to be about  $4.18 \pm 0.96$  L/day. Because this study was conducted in the day of competition, athletes were not asked detailed questions about other fluid consumptions and measurement methods. In hydration information questions, a significant difference was found in water consumption of athletes according to their answers to the statement "*Athletes should begin each training session or competition well hydrated*" ( $p < 0.05$ ). The amount of water that athletes who answered "*true*" to

this question stated consuming during the day of competition ( $4.2 \pm 0.95$  L/day) is higher than that of the athletes answered "*false*" to the question ( $3.6 \pm 1.0$  L/day). Another study supports the findings of this very study by reporting that athletes with knowledge about hydration take in more fluids during their exercises (Carvalho et al., 2011).

In this study, 70.6 % of wrestlers gave correct answers (expected answers – Table 2) to all the questions about hydration. Despite the fact that most of the wrestlers gave correct answers to the questions about hydration in particular (dehydration distorts performance and results in heat stress and heat stroke, athletes should begin exercise/competition well-hydrated and etc...) (Questions 2, 4, 5, 6, 7, 8, 9 and 10), it was figured out that they failed to give expected answers to the questions about sports drinks (Questions 12, 13 and 14). The answers to the statements such as "*Comparing body weight before and after training/competition is not a useful way to determine how much fluid needs to be consumed*" or "*Thirst is a timely indicator that an athlete needs to drink fluids*" (Questions 1 and 3) show that athletes had a lack of knowledge concerning the methods to test hydration situation. It is considered that the lack of sufficient knowledge of athletes about both hydration methods and sports drinks is due to the fact that they do not receive information or knowledge about fluids from reliable and knowledgeable people. Most of athletes (62.8%) expressed that they did not receive any information about fluid consumption from anyone whereas 19.1% of them consulted their trainers and 6.4% consulted to their friends. Nichols et al. conducted a study supporting the findings of this very study by reporting that many of athletes gave correct answers to information questions about hydration while they had a lack of knowledge about sports drinks (Nichols et al, 2005).

Insufficient knowledge of nutrition and wrong practices are limiting factor for

sports and exercise (Kruseman et al., 2008). It is therefore critically important for professional athletes in particular to have a reliable source of nutritional knowledge (Dobbe, 2005). As wrong information and knowledge about nutrition is very common among athletes, it becomes more and more important for trainers of athletes to be knowledgeable about nutrition of athletes (Graves et al., 1991). A study on wrestling coaches and trainers reported that the percentage of trainers and coaches giving correct answers to dehydration questions was 57% whereas the percentage of conscious behaviour about dehydration was found to be 29% (Sossin et al., 1997).

### CONCLUSION

This study aimed at evaluating the level of knowledge of oil wrestlers – a traditional sport for Turks – about dehydration according to their answers to the questions. Although majority of wrestlers gave correct answers to the information questions, it was figured out that they had a lack of knowledge about sports drinks. It is a behaviour that we do not see in professional athletes to consider themselves as a source of information and not to consult experts and specialists.

In contrary with the wrestling on a mat, oil wrestling is common only in a few countries. Existing studies in this field are therefore limited. In oil wrestling that takes place in a hot and humid environment outdoors and where dehydration is fairly high, hydration is a particularly important topic to be emphasized with its direct impact on performance and on which athletes should increase their level of knowledge and awareness. This study is of high importance since it reveals the lack of knowledge about fluid intake of athletes in oil wrestling, a sport branch where dehydration is extremely important.

This study mostly targeted to learn about level of knowledge about fluids of athletes. Since the study was conducted during the days of competition when

athletes were working very hard, we could learn only about water as a fluid type. Repeating the questionnaire when the athletes are more relaxed would contribute in increasing the volume of information. Furthermore, it was also concluded that defining the hydration levels of athletes by weighing up them before and after exercise or by using practical urine tests would bring a significant contribution into the study.

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