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Examination of Attitudes of Sports Science Faculty Students about Energy Drinks, Sports Drinks and Ergogenic Substances

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Abstract

Consumption of beverages is not considered adequate by athletes and coaches. The preliminary knowledge of those who are going to study in Sports Sciences Faculties will be very important. All participants were 1st year students. In the study, participants were asked to assess their socio-demographic characteristics and health behaviors, sport habbits, to determine energy drinks (ED), sports drinks (SD) and ergogenic substances (ES) patterns and frequency and consumption purposes, relationship between consumption status. Use a data collection form was prepared to determine the presence or absence of relevant proposals. Total of 101 participants (55 males, 19.2±1.5; 46 females, 19.0±1.2 years of age), participated in the survey to examine the attitudes of ED, SD and ES. The data were evaluated in the SPSS 21.0. The categorical variablesin the questionnaire were reported as number, percentage, mean and standard deviation. A "chi-square test" and One way ANOVA tests was used. Statistical significance level was accepted as p <0,05. 52.5% of the students stated that energy drinks were beneficial, 57.4% said sports drinks were beneficial and 61.4% of the participants said that they did not have an idea about "ergogenic substances". The prevalence of ED usage was 40.0% for males and 19.5% for females (p: 0.027). While 45.4% of the males are using the SDs, this rate was found to be 13.0% in females (p<0.001). Regarding the use of ED, SD and ES, the young population and especially the sports educators in the future should be informed for the public health. As a result of this study, we would like to draw attention to the importance of education for pre-university youth. In recent years, it is important to make new educational arrangements for the developing and changing consumption habits of young people.

Keywords: energy drinks, sport drinks, ergogenic substances, university students

1. Introduction

Nutrition is the intake and usage of necessary amount of food, needed for human growth, development, a healthy, productive and long life (“WHO | Nutrition”, 2017). It is scientifically shown that, without adequate intake, or more than necessary amounts, the growth, development and health is impaired (Dündar, Evliyaoğlu, & Hatun, 2000). Nutritional habits play an important role in maintaining a healthy, in other words, the quality of life. Proper nutrition and regular physical activity improve mental health as well as physical health (Aşçi, 2003; Prichard & Tiggemann, 2008). There are many studies on regular physical activity (Bağcı, 2017; Ertaş Dölek, 2017) and nutritional habbits of athletes (Cengizhan, 2018). However, today, with the adoption of an unbalanced diet and a sedentary lifestyle prepare the ground for the emergence of many diseases such as obesity, cardiovascular diseases, diabetes, hypertension, osteoporosis, also leads to depression (Furihata et al., 2018). It is important to keep young people away from bad habits and to implement sports in their daily lives from a young age to keep them physically, mentally and socially healthy in their daily lives (Koçak, 2014). One of the main elements of nutrition is the adequate fluid intake (Dölek, Yildiran, & Koz, 2014). Water, which has great value for our lives, has many important roles in the body and also our physical fitness. Our body cannot store the fluid necessary for our metabolism. Therefore, we must constantly renew the amount of water lost for our health and body efficiency (Harder, 2009). Our daily physical mobility determines by how much fluid we need. The more we are physically active, the more fluid we lose, the more fluid we need to take (Roh, So, Cho, & Suh, 2017). Especially individuals dealing with sports should give importance to fluid supplementation in their bodies (Dölek et al., 2014).

One of the components of a healthy diet is also to avoid harmful or known harmful substances. Nowadays, it is

seen that some of the products consumed in the expectation of health benefits actually cause harm to the body, but it is seen that consumers continue to use these products. The level of knowledge about energy drinks, SDs and ES, which are increasing in consumption, are important among the individuals who are engaged in sports and the trainer candidates. In this study, it is aimed to evaluate the knowledge and attitudes of people who are interested in sports or a profession in sports sciences.

EDs are type of beverages those contain stimulant drugs marketed as mental and (Ishak, Ugochukwu, Bagot, Khalili, & Zaky, 2012) physical performance enhancers (Committee on Nutrition and the Council on Sports Medicine and Fitness, 2011). Energy drinks have been associated with health risks (Reissig, Strain, & Griffiths, 2009). Young people's use of EDs just before or during the sport can cause palpitations and heart attacks as a result of dehydration which will develop rapidly due to the effect of caffeine. In addition to fluid loss during exercise, the risk of dehydration increases with the diuretic effect of high-dose caffeine in the content of EDs (Rath, 2012; Sipahi, Sönmez, & Aydın, 2014).

ESs that increase individual energy use, production or regeneration. As sports sciences term, ergogenic is defined as any method that increases energy use, delays fatigue and improves performance. Nowadays, not only many team doctors and health workers don't have enough knowledge about the benefits and side effects of these additive and supportive products, but also they don't inform the athletes enough about this products (Tokish, Kocher, & Hawkins, 2004).

2. Method

The study is an epidemiological descriptive study. Study population is Faculty of Sport Sciences grade 1th. The sample has not been selected and try to reach the whole population.

101 students (55 males, 19.2 ± 1.5 years of age, 46 females, 19.0 ± 1.2 years of age) participated as volunteers. A data collection form prepared questionary by the researchers has been distributed and collected on the same day. SPSS 21.0 statistical package program was used to assessment of the data (License Number: 9888978). The categorical variables in the questionnaire form are indicated in the tables as number, percentage, mean and standard deviation. The chi-square test was used to compare the groups. One-way ANOVA test was used to compare the mean values between groups. $P < 0.05$ was accepted as the statistical significance level. All participants gave their informed consent prior to their inclusion in the study.

Limitations: 18 students could not participate in the study for various reasons. However, this deficiency is not thought to affect the results of the study. Considering that all students have been reached; the results of our study will be able to give us information about their approaches to ED, SD, ES for students studying in sports faculties.

3. Results

60.4% of the participants were 20 years of age and over. 66.3% of the participants are living with their families, 15.8% in the dormitory and 17.8% living alone. 70.3% of the students participated in the study were smoking and 50.5% were not consuming alcohol. 36.6% of the participants stated that they had regular and 63.3% had irregular sleeping patterns. When they were asked about their nutritional status, 17.8% stated that they were always adequately, 25.7% were sometimes adequately eating, 43.6% were trying to eat enough and 12.9% were not eating healthy. 31.6% of the participants had at least 1 chronic disease. The most common disease was anemia with a rate of 23.7%.

Table 1. Participants' sports habits and interest levels

n: 101		n	%
Doing sports activities	Yes	84	83.1
	No	17	16.8
Frequency of doing sports	2 times a week or less	24	23.7
	3–5 Times per week	55	54.4
	6–7 Times per week	22	21.7
Sports type	Individual	46	45.5
	Team	55	54.4
Suitable material usage according to sports	Yes, I use it all the time	76	75.2
	I use it partially	19	18.8
	No, I don't use	6	5.9
Age of starting Sports	Under 11 years	50	49.5
	11 years and up	51	50.5
Licensed athlete	Yes	61	60.4
	No	40	39.6

The findings of participants' sports habbits and their interest levels are presented in Table abow. The majority of the participants appear to be a group of athletes who regularly train and fulfill the requirements of the sport they are interested in, as understood from their statements (Table 1). The findings of BMI values values according to their own declaration and body perceptions given in the Table 2.

Table 2. BMI values values according to their own declaration and body perceptions

	Male		**Female**		**Total**	
	n: 55	%	n: 46	%	n: 101	%
Calculated BMI						
Low	8	14.5	4	8.7	12	11.9
Normal	36	65.5	32	69.6	68	67.3
High	10	18.2	8	17.4	18	17.8
Very High	1	1.8	2	4.3	3	3.0
Body Perception						
Low	8	14.5	8	17.4	16	15.8
Normal	39	70.9	28	60.9	67	66.3
High – Very High	4	7.3	7	15.2	11	10.9
No Idea	5	9.1	2	4.3	7	6.9

Table 3. Participants' opinions on EDs, SDs and ESs

Participants' Opinions (n: 101)	**Useful**		**Harmful**		**No Idea**	
	n	%	n	%	n	%
EDs	53	52.4	27	26.7	21	20.7
SDs	58	57.4	19	18.8	24	23.7
ESs	23	22.7	16	15.8	62	61.3

When asked about their opinions about EDs, 52.4% stated that they found it useful, 26.7% found it harmful and 20.7% stated that they did not have any information about their content. Then asked about their opinions about SDs, 57.4% stated that they found it useful, 18.8% found it harmful and 23.7% stated that they did not have any information about their content. When asked about their opinions about ESs, 22.7% stated that they found it useful, 15.8% found it harmful and 61.3% stated that they did not have any information about their content (Table 3.)

Table 4. ED, SD and ESs usage by gender and to professional/licensed atlete status

		Gender				**Professional/Licensed Athlete**			
		Male (n:55)		Female (n:46)		Yes		No	
		n	%	n	%	n	%	n	%
ED	Using	22	40.0	9	19.5	28	45.9	14	35.0
	Not using	33	60.0	37	80.4	33	54.1	26	65.0
Chi-Square: 4.917		**p: 0.027**				Chi Square: 2.903		p: 0.088	
SD	Using	25	45.4	6	13.0	25	40.9	11	27.5
	Not using	30	54.5	40	86.9	36	59.0	29	72.5
Chi Square: 12.370		**p: < 0.001**				Chi Square: 3.942		p: 0.047	
ES	Using	17	30.9	8	17.3	20	32.7	10	25.0
	Not using	38	69.0	38	82.6	41	67.2	30	75.0
Chi-Square: 2.630		**p: 0.105**				Chi Square: 2.769		p: 0.096	

Considering ED, SD and ES usage by gender, it is seen that male participants are more commonly using these products than female participants. 40.0% of male subjects are using EDs, while this rate is 19.5% for females (p: 0.027). The prevalence of use of SDs was 45.4% in males and 13.0% in females (p: <0.001). In ES consumption, 30.9% of males and 17.3% of females stated that they are using these products (p: 0.105). Regarding ergoogenic substance consumption, iti is found that 32.7% of professional or licensed athletes are using these products where 67.2% of them are not using and 25.0% of those who are not engaging any sports did not use these products where 75.0% of them are not using. Although EDs and ES consumption were more common in professional/licensed athletes, no statistically significant difference was found (Table 4). No significant relationship was found between age of starting sports and usage of EDs and ES. Who has been started sports around 10 years old using SDs more than starded sports older then 10 years old ($p < 0.05$). 51.8% of all the participants use at least one of these products and 48.5% of them are not using any products. While 63.4% of

those using at least one of the three products recommended, 26.5% of those who did not recommend it and those who use it suggested more and the difference between them was statistically significant ($p < 0.05$). Also; 62.3% of the participants did not agree with the idea that EDs, 45.5% of them that SDs, and 41.5% of them that the ESs affect our health positively. 27.7% of the participants stated that EDs were addictive, 47.5% of them stated that ESs contributed to the muscle development of and 35.6% stated that SDs are harmful to human metabolism.

4. Discussion

The male/female ratio of the participants is 55.4%/45.5% respectively. This makes the study more valuable and valid. Because the study is it applied only to the 1st grade students of the Faculty of Sport Sciences.

29.7% of the students participated in the study stated that they are using cigarettes. According to 2016 data from Turkish Statistical Institute (TSI) smoking rate in Turkey is 26.5 percent. 50.5% of the participants stated that they are consuming alcoholic beverages. Considering that 29.7% of the participants are smoking, it can be said that it is higher than the average of Turkey. Dinç et al. (2017) examined the nutritional habits of individuals who regularly exercise sports, and showed that 81.2% of the participants had their breakfast, 92.2% had their lunch and 97.4% had their dinner (Dinç, Gökmen, & Ergin, 2017). Individuals participating in our study may be considered to need support for the importance of nutrition and eating habits.

The result of the BMI calculated according to their declaration 67.3 % of them normal, 2.9% of them obese. The frequency of obesity in the world is increasing. According to World Health Organization 2016 data, 18.0% of children and adolescents aged between 5 and 19 years are obese, and according to the same data, this rate was found to be 11.5 % in 2016 for Turkey. The obesity rate in adults over 18 years of age is 39.0%, while this rate is 32.10% in Turkey. The implementation of the Healthy Nutrition and Mobile Life Program in progress should continue. It is known that doing sports is very important in terms of prevention of obesity, and weight loss and we have a very important role in primary care which is one of the most important issues of public health. For this reason, we should increase the awareness of sports in the whole society, especially in youth generation, and integrate the sport into our lives. This kind of health policy will ensure that millions of dollars of money will remain in the safe of the state each year and reduce overall health expenses (Ertaş Dölek, 2017).

40.0% of the male and 19.5% of the female use EDs, 45.5% of the male and 13.1% of the female use SDs, and 30.9% male and 17.4% of female use ESs. As we found in our study, the rate of use among the university students is higher in male (Reid & Gentius, 2018). In the study conducted on 194 university students, it was determined that 6.7% of the participants consumed EDs and 5.2% of them use SDs regularly. 90.2% of the participants do not know the difference between the concepts of EDs and SDs (Kalkan, Pehlivan, Öztürk, & Ersoy, 2018). 60.4% of the do sports as professionally/licensed athlete. In the professional/licensed athlete group, use ED, SD and ES respectly 45.9%, 40.9% and 32.7%. The study conducted in 2017, to identify the relationships between energy drink consumption and nutrition knowledge, with 194 student-athletes, most participants were aged 18–21 years (91.8%) and did not consumeenergy drinks (85.5%). They also found; the majority of users (64%) felt that they benefited from consuming energy drinks (Hardy, Kliemann, Evansen, & Brand, 2017). In similar studies, 35.0% of individuals used ED in the young age group before the week and 12.0% used them for 4 and more a week (Utter, Denny, Teevale, & Sheridan, 2018). In the study of 1255 student participated; out of 1255 participants, 245 reported using EDs. Out of a total 1255 students, 903 (72%) were from medical and 352 (28%) from nonmedical colleges of the university (Alabbad et al., 2019). 159 people took part in the other study; 63.3% confirmed their use of various types of substance, including sports supplements and pharmaceutical product (Dominicis et al., 2017). In another study conducted on 449 university students, it was determined that the most frequently reported reasons for ED consumption were 90.3% lack of energy and 87.0% sleep disability, also it was determined that EDs consumption and difficulty for consumption were changing according to the consumers' demographic characteristics (McGaughey, Senkowski, Taylor, Branscum, & Cheney, 2018).

Endorsements by elite athletes and claims of hydration benefits with little thought to the types and amount of activity that warrant SD use lead to the perception that SDs are healthy. A study from the Yale University Rudd Center for Food Policy and Obesity confirms this idea, finding that more than 1 in 4 American parents believe that SDs are healthy for children (Harris et al., 2014). In our study, 36.5% of the participants do not recommend such products to the others when they are asked. 52.4% of the participants think the EDs as beneficial, and this shows that the incentive and false propaganda in the market is really working.

SD consumption contributes to the weight-related conditions on the rise in adolescent population. Clear messaging should be provided about the appropriate use of SDs and the potential health consequences of improper consumption (White, 2019). Compared with energy, SDs and ESs, young people have less information about ESs. It is also noteworthy that those who are aware of the ministry approving EDs, SDs and ESs are in the

minority. Especially such non-essential foods, should be prevented from taking place in the market so quickly. An awareness should be given to the society and the unconscious use of supplementary nutrients should be prevented with the trainings to be carried out.

When the use of EDs, SDs and ESs according to gender is evaluated, it is seen that the usage of male participants is more common than female participants. Similar results were found in a study conducted with the Saudi university students (Alabbad et al., 2019). The prevalence of ED usage was 40.0% for males and 19.5% for females (p: 0.027). While 45.4% of the males are using the SDs, this rate was found to be 13.0% in females ($p < 0.001$). There was a difference in the consumption of EDs according to the gender in the youths aged 18–24 (Pettit & Debarr, 2011). Both sexes should be informed in terms of potential health risks.

The SDs are more commonly consumed by professional/licensed athletes. 40.9% of the participants' use SDs, frequency of the professional sports male/female is 27.5% (p: 0.047). Thus, use of SDs has become a part of professional sports life. No significant relationship was found between age of onset of sports and use of EDs and ESs. It was found that the SDs consumers started sports at an early age (p: 0.018).

5. Conclusion

These data showed that, efforts should be made to encourage people to participate in sports to create a healthy society. Based on the results, the participants do not have much information about the content of such products. In food consumption, our society should be accustomed to look at the contents of the foods they are consume from primary school ages and a more conscious society should be created. Formal education, health policy-nutrition and consumption trainings at young ages should be provided to shape the habits of young people. Regarding the use of ED, SD and ES, the young population and especially the sports educators in the future should be informed for the public health.

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