

Investigation of food consumption frequency in sports faculty students

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Summary. *Aim:* The aim of this study was to investigate the frequency of food consumption among the students of the Faculty of Sport and to determine whether it changes according to gender. *Material and Methods:* The results of the food consumption frequency scale of 297 students from sports faculty students were evaluated. T-test and chi-square methods were used in statistical procedures. *Results:* Body mass index values of the students were found to be 23.52 kg / m² in men and 22.20 kg / m² in women. In this study, 56.6% of the students stated that they always have breakfast while 37.4% stated that they sometimes have breakfast and 6.1% stated that they do not have breakfast. While 15.2% of the students stated that they always had mid-morning meals, 32.3% said that they sometimes do and 52.5% said they never do. A significant difference was found in the habit of making breakfast by gender ($p < 0.05$). While 15.2% of the students stated that they always have mid-morning meals, 32.3% said that they sometimes do and 52.5% said they never do. According to gender ($p < 0.05$). While 52.5% of the students stated that they always have lunch, 36.4% said that they sometimes have lunch and 11.1% stated that they never eat at noon. There was no significant difference in the dinner habits by gender ($p > 0.05$). While 27.3% of the students stated that they always eat late dinner, 58.6% stated that they sometimes eat late dinner and 14.5% stated that they do not eat late dinner at all. There was no significant difference in late dinner habits according to gender ($p > 0.05$). While 81.8% of the students stated that they always eat dinner, 13.5% stated that they sometimes eat dinner and 5.1% stated that they never eat dinner. There was no significant difference in the dinner habits by gender ($p > 0.05$). While 27.3% of the students stated that they always have late dinner, 58.6% stated that they sometimes have late dinner and 14.5% stated that they do not eat at all. There was no significant difference in late dinner habits according to gender ($p > 0.05$). *Conclusion:* It is determined that sports educated students food consumption habits are not suitable for healthy nutrition and sports nutrition. It is recommended that this study be conducted on the basis of non-consuming nutrients. It is recommended to conduct this study on higher number of students and performance athletes by asking them their daily energy needs and the reasons why they do not consume some foods.

Key words: Nutrition, Student, Food consumption, Investigation of Food Consumption Frequency in Sports Faculty Students

Introduction

The purpose of nutrition is to get in sufficient quantities the energy and nutrients the individual needs according to age, gender, work and special conditions (1). Nutrition and health are closely related concepts (2,3). One of the risky groups related to un-

healthy nutrition is university students. Research suggests that students generally do not pay attention to meals, they eat single meals, and consume more foods such as sandwich and bagels (4,5). It is also suggested that economic difficulties are effective in the problem of inadequate and unbalanced nutrition, students staying in dormitories don't have a good diet because of

dormitory conditions and they only feed themselves (4,5).

A balanced diet consists of taking the desired amounts of different food components to meet the energy and nutritional requirements of a person (6). Adequate energy should come from carbohydrate, protein, fat and micronutrient sources and a wide range of foods (7). Adequate and balanced eating habits are necessary for good physical performance as well as health (8, 9). Physical activity and sport have a great number of positive (10) and preventive effects on health (11). The importance of nutrition in terms of healthy life and performance of an athlete is an indisputable fact (12). Besides nutrition in athletes changes in body composition should be observed and precautions should be taken if necessary (13)

Although studies conducted show lack of nutritional information at high school level, it can also be seen at university level (14). It is reported that students have significant unhealthy eating habits and carry important risk in this respect (15). It has also been found that individuals consume too much fast food, snacks and food with high carbohydrate content and that they do not pay attention to food diversity (16,17). Nutrition is a balanced and reasonable consumption of nutrients which are required for an individual to grow up, to continue living and to maintain health. Health nutrition is the ability to meet the nutrients needed by considering the gender, age and physiological structure of the individual. Healthy eating behaviors are affected by gender, age, economic status, marital status and education level. Communities can achieve their targeted quality of life by raising nutritional awareness. Studies examining the dietary and health habits of university students revealed that not only did the regular diet of university students contain excessive amounts of saturated fat, cholesterol and sodium, but also the frequency of smoking among students was among the highest reported in the literature (18,19). In a study conducted by Onurlubaş et al. (2), while 36.0% of the students thought that they had a healthy diet, 64.0% did not. Erten (20) found that only 22,8% of the students thought that they had a healthy and balanced diet. Sports can cause differences in different areas (21). These differences can also be about diet and athletes should have a special diet.

Positive changes are seen in students receiving sports education. For example, even personality traits change positively in education. Students' hopelessness levels may increase their stress levels (22,23). Increased stress levels have negative consequences on both the body and the mind. Stress level can adversely affect nutritional status (24). It is known that it will be possible for an athlete to develop the body, protect the health and reach high sport performance only through a diet which is balanced, regular and fit for purpose (25). For these and similar reasons, it was considered important to determine the nutritional status of sports-educated students and the frequency of food consumption among sports-educated students. This study aims to show the nutritional habits of university students and their reasons for choosing the food they consume and to find out the target consumption according to these habits.

Materials and Methods

Participants and Procedure: A questionnaire of the frequency of food consumption was administered to the undergraduate students (n=297) of sports faculty. 48.8% of the participants are male (n = 144) and 51.52% (n = 153) are female students.

Average age of the male students is 22.16 ± 2.21 , while the average age of the female students is 22.25 ± 1.70 . The ages of the students vary between 17-27. The participants completed the questionnaire on a voluntary basis. Incomplete questionnaires were excluded. In order to determine the frequency of food consumption, the scale of food consumption developed by Alpar was used (26). In this scale, consumption of 46 foods with frequencies of every day, 3-5 times a week, 1-2 times a week, once every fifteen days, once a month and with no frequency are questioned. SPSS 23.00 package program was used in the research. The comparison of age, height and body weights in terms of gender was conducted by independent t-test and Chi-square methods were used for differences according to gender. Significance level was accepted as $p < 0.05$.

Results

Table 1. Comparison of Age, Height and Body Weights According to Gender

	Gender	n	%	Mean	sd	t-test	p
Age (Years)	Male	144	48.8	22.16	2.21	-0.22	0.325
	Female	153	51.52	22.25	1.70		
Height (cm)	Male	144	48.8	177.12	5.62	11.10	0.001**
	Female	153	51.52	163.86	6.21		
Body weight (kg)	Male	144	48.8	74.70	8.90	8.42	0.001**
	Female	153	51.52	58.98	10.70		
BMI (kg/m ²)	Male	144	48.8	23.52	2.15	5.66	0.001**
	Female	153	51.52	22.20	1.90		

**p<0.001

Table 2. Comparison of Meal Habits According Gender

Variables		Always	Sometimes	Never	Total	X ²	p
		n (%)	n (%)	n (%)	n (%)		
Breakfast	Male	81 (56.3)	48 (33.34)	15 (10.4)	144 (100)	9.97	0.025*
	Female	87 (56.9)	63 (41.2)	3 (2.0)	153 (100)		
	Total	168 (56.6)	111 (37.4)	18(6.1)	297 (100)		
Mid-morning meal	Male	21 (14.6)	57 (39.6)	66 (45.8)	144(100)	7.01	0.031*
	Female	24(15.7)	39 (25.5)	90(58.8)	153(100)		
	Total	45 (15.2)	96 (32.3)	156(52.5)	2971 (100)		
Lunch	Male	81(56.3)	60(41.7)	3(2.1)	144(100)	23.40	0.001**
	Female	75(49.0)	48(31.4)	30(19.6)	153(100)		
	Total	156(52.5)	108(36.4)	33(11.1)	297(100)		
Mid-afternoon meal	Male	15(10.4)	72(50.0)	54(39.6)	144(100)	5.01	0.458
	Female	18(11.8)	66(43.1)	69(45.1)	153(100)		
	Total	33(11.1)	138(46.5)	126(42.4)	2971 (100)		
Dinner	Male	111 (77.1)	24(16.7)	9(6.3)	144(100)	4.22	0.369
	Female	132(86.3)	15(9.8)	6(3.9)	153(100)		
	Total	243(81.8)	39(13.1)	15(5.1)	2971 (100)		
Late Dinner	Male	30(25.0)	87(60.4)	27(14.6)	144(100)	3.48	0.568
	Female	45(29.4)	87(56.9)	21(13.7)	153(100)		
	Total	75(27.3)	174(58.6)	48(14.1)	2971 (100)		

*p<0, 05

Table 3. Frequency of consumption of meat and dairy products

Food	Everyday	3-5 days in a week	1-2 days in a week	Every 15 days	Once a month	Never
Red meat	12 (4.0%)	36(12.1%)	84 (28.3%)	48 (16.2%)	84(28.3%)	33(11.1%)
Chicken, turkey	36 (12.1%)	87(29.3 %)	99(33.3 %)	42(14.1%)	18(6.1%)	15(5.1%)
Fish	3(1.0 %)	6(2.0 %)	21(7.1%)	48(16.2 %)	144(48.5 %)	75 (25.3 %)
Offal (liver, spleen, kidney, etc.)	0	9 (3.0%)	9(3.0 %)	12(4.0 %)	66(22.2%)	201 (67.7%)
Sausages, Salami	21(7.1%)	84(28.3 %)	90(30.3 %)	27(9.1%)	39(13.1 %)	36(12.1 %)
Milk (whole milk)	33(11.1 %)	45(15.2%)	75(25.3%)	36(12.1%)	51(17.2 %)	57(19.2%)
Milk (semi skimmed, fat-free)	15 (5.1%)	48(16.2 %)	63(21.2 %)	45(15.2%)	54(18.2 %)	72(24.2 %)
Yoghurt, buttermilk (full fat)	48(16.2 %)	105(35.4%)	69(23.2 %)	15(5.1%)	27(9.1%)	33(11.1%)
Yoghurt, buttermilk (semi skimmed)	48 (16.2%)	78(26.3 %)	60(20.2 %)	27(9.1%)	21(7.1%)	63(21.2%)
Cheese(full fat)	66 (22.2%)	87(29.3 %)	75(25.3 %)	9(3.0 %)	30(10.1 %)	30(10.1%)
Cheese (semi skimmed)	69 (23.2%)	45(15.2 %)	72(24.2 %)	30(10.1 %)	27(9.1%)	54(18.2 %)
Milky dessert, ice cream	12(4.0 %)	42(14.1 %)	102(34.3 %)	75(25.3 %)	45(15.2 %)	21(7.1 %)

Table 4. Use of Meat and Dairy Products According Gender

	Male	Meat and Meat Products			Milk and Dairy Products		
		Female	Total	Male	Female	Total	
Everyday	n	48	24	72	99	192	291
	%	6.7	3.1	4.8	9.8	17.9	14.0
3-5 days in a week	n	120	102	222	186	264	450
	%	16.7	13.3	14.9	18.5	24.6	21.6
1-2 days in a week	n	153	150	303	279	237	516
	%	21.3	19.6	20.4	27.7	22.1	24.8
Every 15 days	n	81	96	177	102	135	237
	%	11.3	12.5	11.9	10.1	12.6	11.4
Once a month	n	165	186	351	159	96	255
	%	22.9	24.3	23.6	15.8	9.0	12.3
Never	n	153	207	360	183	147	330
	%	21.3	27.1	24.2	18.2	13.7	15.9
Level of significance		X² =18.77 p=0.002*			X² = 68.90 p=0.001**		
**p<0.001							

Table 5. Vegetables, fruits and citrus fruits and cereals and their derivatives

Food	Everyday	3-5 days in a week	1-2 days in a week	Every 15 days	Once a month	Never
Fresh green leafy vegetables	33 (11.1%)	72(24.2%)	96(32.3%)	45(15%)	33(11%)	18(6.1%)
Potato	39(13.1%)	123(41.4%)	99(33.3%)	24 (8.1%)	6(2.0%)	6(2.0%)
Other fresh vegetables	24 (8.1%)	78(26.3%)	111(37 %)	48(16%)	30(10%)	6(2.0%)
Citrus	18(6.1%)	48(16.2%)	111(37%)	60(20%)	51(17%)	9(3.0 %)
Other fresh fruit	36(12.1%)	54(18.2%)	84(28.3%)	69(23%)	45(15%)	9(3.0 %)
Ready dried fruit /vegetables	15(5.1 %)	21(7.1%)	42(14.1%)	75(25.3%)	72(24.2%)	72(24.2%)
Homemade dried vegetables / fruit	12(4.0%)	9(3.0%)	33(11.1%)	48(16.2%)	69(23%)	126(42.4%)
Processed juices	36(12.1%)	69(23.2%)	69(23.2%)	36(12.1%)	45(15.2%)	42(14.1%)
White bread types (market bread, flat bread, phyllo dough)	123(41.4%)	57(19.2%)	48(16.2%)	21 (7.1%)	24(8.1%)	24(8.1 %)
Whole grain bread (whole meal, rye, oat etc.)	42(14.1%)	78(26.3%)	51(17.2%)	33(11.1%)	27(9.1%)	66(22.2%)
Rice, bulghur, pasta, wheat flour, cookie	60(20.2%)	117(39.4%)	66(22.2%)	48(16.2%)	6 (2.0%)	0
Biscuit/ Cracker	63(21.2 %)	111(37.4%)	75(25.3%)	24(8.1 %)	12(4.0%)	12(4.0 %)
Grains for breakfast	30(10.1%)	60(20.2%)	60(20.2%)	57(19.2%)	30(10%)	60(20.2%)
Bagel	12(4.0%)	69(23.2%)	105(35%)	60(20.2%)	39(13%)	12(4.0 %)
Pastry dessert	15(5.1 %)	42(14.1%)	81(27.3%)	69(23.2%)	66(22%)	24(8.1%)
Sugar, honey, jam, molasses	60(20.2%)	72(24.2%)	51(17.2%)	36 (2.1%)	36(12%)	42(14.1%)
Candies, delight, chocolate	48(16.2%)	90(30.3%)	99(33.3%)	36(12.1%)	18(6.1%)	6(2.0 %)

Discussion

The frequency of food consumption among the students of the Faculty of Sport according to gender is discussed below.

In this study, average age for the study participants is 22.16 years for men and 22.25 years for wom-

en. Weight averages are 74.70 kg in men and 58.98 kg in women, and average height is 177.12 cm in men and 163.86 cm in women. Average BMI is 23.52 kg / m² in men and 22.20 kg / m² in women. While there was no significant difference between ages of the students in terms of gender, there was a statistically significant difference between height, weight and BMI values (p

Table 6. Vegetables, Fruits and Citrus Fruits, Cereals and Derivatives According to Gender

		Vegetables, fruit and citrus			Grains and derivatives		
		Male	Female	Total	Male	Female	Total
Everyday	n	60	153	213	138	207	345
	%	5.2	12.5	9.0	13.7	19.3	16.6
3-5 days in a week	n	201	273	474	294	240	534
	%	17.4	22.3	19.9	29.2	22.4	25.7
1-2 days in a week	n	321	324	645	240	246	486
	%	27.9	26.5	27.1	23.8	23.0	23.4
Every 15 days	n	252	153	405	159	153	312
	%	21.9	12.5	17.0	15.8	14.3	15.0
Once a month	n	186	165	351	96	108	204
	%	16.1	13.5	14.8	9.5	10.1	9.8
Never	n	132	156	288	81	117	198
	%	11.5	12.7	12.1	8.0	10.9	9.5
Level of significance		X ² = 76,90 p=0,001**			X ² = 24,82 p=0,001**		

**p<0.001

Table 7. Consumption of tea, coffee, fizzy and alcoholic beverages

Food	Everyday	3-5 days in a week	1-2 days in a week	Every 15 days	Once a month	Never
Fizzy drinks	30(10.1%)	57(19.2 %)	72(24.4%)	60(20.2 %)	42(14.1 %)	36(12.1 %)
Coffee, Instant coffee	114(38.4 %)	57(19.2 %)	63(21.5 %)	15(5.1 %)	30(10.1 %)	18(6.1%)
Tea (black, green)	201(67.7%)	42(14.1 %)	30(10.1 %)	12(4.0 %)	6(2.0 %)	6(2.0 %)
Herbal Tea	39(13.1%)	33(11.1 %)	57(19.2%)	72(24.2 %)	51(17.2 %)	45(15.2 %)
Alcoholic Beverages	18(6.1%)	18(6.1%)	27(9.1%)	27(9.1%)	51(17.2%)	156(52.5%)

Table 8. Use of Tea, Coffee, Carbon and Alcoholic Beverages According to Gender

	Male	Female	Total	
Every	n	201	201	402
	%	27.9	26.3	27.1
3-5 days in a week	n	117	90	207
	%	16.3	11.8	13.9
1-2 days in a week	n	126	123	249
	%	17.5	16.1	16.8
15 days in a week	n	90	96	186
	%	12.5	12.5	12.5
Once a month	n	81	99	180
	%	11.3	12.9	12.1
Never	n	105	156	261
	%	14.6	20.4	17.6

X² =14.16 p=0.015*

<0.001). Index values for BMI are considered as normal between 22 and 23.90 (27). According to this view, students are in normal health due to their body weight.

Şener and İmamoglu (28) found no significant difference between females and males in a study with

different university students. Dinç et al. (29) found that 81.7% of the participants in their study were having breakfast. When we look at the food habits of our participants, 92.2% of the participants stated that they ate snacks and 97.4% stated that they ate dinner. In another study by Aytakin and Bulduk (30), it was found that 55% of the students had 3 meals a day, while 35.0% had two meals a day.

Korkmaz (31), in a study examining nutritional habits of Uludag University students, found that the meal students skipped most was breakfast with a rate of 24.8%, while the meal skipped least was dinner with a rate of 92%. In another study conducted, it was found that the meal skipped most was breakfast (32). In this study, 56.6% of the students stated that they always made breakfast, while 37.4% stated that they sometimes made breakfast, and 6.1% stated that did not make breakfast.

There was a significant difference (p<0.05) in the frequency of gender-based eating habits. It was found that higher number of male students did not

Table 9: Consumption frequencies of different food

Food	Everyday	3-5 days in a week	1-2 days in a week	Every 15 days	Once a month	Never
Egg	123(41.4%)	81(27.3 %)	45(15.2 %)	30(10.1 %)	3(1.0%)	15(5.1 %)
Legume (lentil, chickpea, white beans)	33(11.1%)	69(23.2 %)	120(40.4%)	39(13.1 %)	30(10.1%)	6(2.0 %)
Snacks (nut, peanut, walnut, almond)	30(10.1%)	48(16.2 %)	105 (35.4%)	54(8.2 %)	48(16.2 %)	12(4.0%)
Convenience foods (appetizer, canned food etc.)	24(8%)	57(19 %)	51(17%)	57(9 %)	51(17%)	57(19 %)
Minced pita bread, Turkish pizza, etc.	15(5%)	54(18%)	105(35%)	69(23%)	51(17%)	3(1.0 %)
Döner kebab etc.	21(7%)	90(30 %)	81(27%)	57(19%)	30(10%)	18(6%)
Hamburger, fried chicken etc.	9(3%)	48(16%)	87(29%)	75(25.3 %)	57(19%)	21(7%)
Chips	9(3%)	45(15 %)	75(25%)	69(23%)	63(21%)	36(12 %)
Frozen food	3(1%)	33(11 %)	69(23%)	66(22%)	75(25%)	51(17%)
Fat (butter, margarine)	51(17%)	75(25%)	48(16%)	51(17%)	39(13%)	33(11%)
Oil (sunflower oil, corn oil, soy oil)	81(27%)	87(29%)	60(20%)	39(13%)	18(6%)	12(4%)

have breakfast when compared with female students. 15.2% of students indicated that they always had mid-morning meal, while 32.3% stated that they sometimes did and 52.5% stated that they never did. A statistically significant difference ($p < 0.05$) was found in mid-morning eating habits according to gender. It was found that higher number of female students did not have mid-morning meal. It was also found that half of the students did not have a habit of mid-morning meal. In their study, Dinç et. al.(29) found that 51.3% of the participants had mid-morning meal, 48.7% did not have mid-morning meal, 47% had mid-afternoon meal, 53% did not have mid-afternoon meal, 35.7% ate after dinner and 64.3% did not eat after dinner. Lluç et al. (33) found that the feelings of fullness decreased significantly and the feeling of agitation and the desire to eat increased when deprived of breakfast, while they associated no exercise and low energy breakfast with mood disorders in the morning. Skipping meals and not having snacks in-between meals will have negative effects on the performance of some athlete students.

This study showed that 52.5% of students always had lunch, while 36.4% stated that they sometimes had lunch and 11.1% stated that they never had lunch. Statistically significant differences were found in the habit of having lunch according to gender ($p < 0.001$). More males were found to skip lunch than females. 11.1% of the students stated that they always had mid-afternoon meal, while 46.5% stated that they sometimes did and 42.4% stated that they never did. No

statistically significant difference was found in mid-afternoon meal habits according to gender ($p > 0.05$). 81.8% of the students stated that they always had dinner, while 13.1% stated that they sometimes did and 5.1% stated that they never did. No statistically significant difference was found in dinner habits according to gender ($p > 0.05$). 27.3% of the students stated that they always had late dinner, while 58.6% stated that they sometimes did and 14.1% stated that they never did. No statistically significant difference was found in dinner habits according to gender ($p > 0.05$). It can be said that the habit of having mid-afternoon meal and dinner is low in the students. Considering that the participants were students receiving sport education and some were even competitor athletes, it can be recommended for them to pay attention to their eating habits and frequency of food consumption.

Onurlubaş et al. (2) examined the frequency of food consumption of students and found that the foods they consumed the most were cereals and cereal products (33.6%), eggs every two days (40.5%), vegetable (36.0%) and fruit (36.0%) once a week, vegetables (14.9%) every fifteen days and once a month (5.4%), meat and meat products (1.4%) and milk and milk products (1.4%) less than a month. It was found that 8.8% did not consume any eggs (2). In this study, consumption of red meat, chicken, turkey, fish, offal, sausage, salami and sausage was asked. Milk and dairy products as full sweet milk, skim and half-fat milk, full and half-fat yogurt and buttermilk, full and half-fat

cheese, milk dessert, ice cream consumption was asked. When the frequency of meat consumption of the students was examined, it was found that there were students who did not consume red meat, white meat, fish and offal. Especially the number of those who did not consume offal was high with a rate of 67.7%. It was also observed that approximately 20% of the students did not consume milk and dairy products (Table 3). A statistically significant difference was found in the frequency of consumption of meat and meat products and the use of milk and dairy products by gender ($p < 0.05$ and $p < 0.001$) ($p < 0.05$ and $p < 0.001$).

In this study, vegetables, fruits, citrus fruits, cereals and their derivatives were green leafy vegetables, other fresh vegetables, citrus fruits, potatoes, dried fruits and vegetables, ready-made juices. Cereals and derivatives were all types of bread, rice, bulgur, pasta, biscuits crackers, breakfast cereals, bagels, and pastry desserts. It was found that while fresh vegetables were preferred, the rate of not consuming homemade dried fruit / vegetables was very high (42.4%). A significant difference was found in the frequency of consumption of vegetables, fruits and citrus fruits and cereals and derivatives by gender ($p < 0.001$).

In a study conducted, similar to the results of the presents study, it was found that university students consumed mostly tea and coffee at breakfast and significant difference was found in the frequency of consumption of tea, coffee, fizzy drink and alcohol (34). The rate of women who do not use tea, coffee, fizzy and alcoholic beverage is higher than that of men.

İmamoğlu et al. (35) found differences in nutritional scores of students active in various sports branches in the field of physical education and evaluated that this situation occurred because athletes' nutritional levels were below the desired level and they had wrong eating habits. When the consumption of egg was examined in the present study, it was found that 5.1% did not consume any egg, while 41.4% consumed egg every day (Table 9).

Conclusion: It was concluded that sport education students had habits which are not suitable for healthy nutrition and sports nutrition. The number of male students who did not have breakfast was higher than the number of female students who did not have breakfast. More than half of the students did not have

the habit of eating in the mid-morning. There are few male students who did not have lunch. Almost half of the students did not have the habit of eating in the mid-afternoon. Both male and female students had a high rate in terms of having dinner. It is recommended to conduct this study on higher number of students and performance athletes by asking them their daily energy needs and the reasons for the food they do not consume. It is recommended to conduct this study on higher number of students and performance athletes by asking them their daily energy needs and the reasons why they do not consume some foods.

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