



Research Article

THE ACQUISITION OF HEALTHY FOOD CHOICES, BREAKFAST AND EATING HABITS TO THE PRE-EDUCATION AND AFTER EDUCATION IN ADOLESCENTS

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Cite this article as:

Aksoy, A., Ulaş, G. (2019). The acquisition of healthy food choices, breakfast and eating habits to the pre-education and after education in adolescents. *Food and Health*, 5(2), 83-94. <https://doi.org/10.3153/FH19009>

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Submitted: 27.08.2018

Accepted: 09.09.2018

Published online: 20.11.2018

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ABSTRACT

Adolescence is a period when the fastest growing happens in individuals after babyhood. The study was conducted with a total of 540 students from the 5th, 6th, 7th, and 8th Grade students (284M and 256F) attending secondary school. In the first stage, 540 questionnaires that had 39 questions were applied to the students who were trained; and the children were given nutrition training; and after 20 days, another 540 questionnaires were applied again. The data of a total of 540 pre-training and 540 post-training students were recorded in terms of their eating habits, regular breakfast and healthy food selection before and after the study. The body parameters according to gender (height, weight, BMI) show normality with the percentile values formed in Turkish children. The percentages of the answers given by the students to the questions before and after the training are given under each question category. A significant difference was detected between the habits of not having breakfast according to gender ($P=0.021$) ($P<0.05$). As a conclusion, these data show that food selection may be developed with training.

Keywords: Adolescence, Nutrition training, Eating habits, BMI, Body parameters

Introduction

Nutrition in adolescents is important for healthy growth and development. One of the periods in which sufficient and balanced nutrition is very important is the adolescence period, which is between childhood and maturity, where growth and development are accelerated. Adolescence is a period when the fastest growing happens in individuals after babyhood. Adolescence means growth and reaching maturity (Spear, 2002; Demirezen and Cosansu, 2005).

In this period, nutrition habits generally differ from children and adults. Adolescents have the tendency to skip meals and the tendency to eat most of the meals out of their homes, to consume fizzy drinks, candy, dietary foods and readymade meals and drinks is more (Stea et al., 2012). In the adolescence period, energy and nutrition items should be taken in adequate and balanced amounts; otherwise, the growth of the body may slow down, success at school may decrease; and important diseases such as cardiovascular, diabetes, hypertension may be seen in further ages (Malik et al., 2013).

There is no single nutrient element that contains all the necessary nutrients to meet the requirements of the human body (Aksoy and Selen, 2018). For this reason, the human body can only stay healthy if all nutrients are taken properly, balanced and correctly from all foods groups (Aksoy et al., 2017). Foods have been divided into different groups; and the amount of from food groups be consumed every day has been determined by national food guides over the world (Willett and McCullough, 2008; Aktas, 2011; TUBER, 2015).

Scientists in the food guides generally have grouped the nutrients under five groups (TUBER, 2015), the amounts of the nutrients included in these groups have been determined, and daily nutrition plans have been made. In this way, people have been guided to learn the calories and their varieties, which should be taken according to the needs of the body, the nutrient groups that are to be taken from outside when they consume nutrients (Cooke and Wardle, 2005; Neumark-Sztainer et al., 1999; Auestad et al., 2015).

If healthy eating habits, which will continue lifelong, are acquired during the adolescence period, possible future risks will be reduced. Regular breakfast habit is important for the health and development in adolescence and breakfast is as the most essential meal of the day, but it is the most skipped meal (Cebirbay et al, 2011). The energy and nutrients needed between 10-12 hours between dinner and breakfast are provided by the body storages. Breakfast time should not be missed after this time period. When breakfast is skipped,

weakness, headache, attention and perception problems may appear during the day (Wouters et al., 2010).

In reinforcing healthy eating habits, which are acquired during childhood and adolescence, the school environment has a great importance. Schools offer many opportunities to promote healthy dietary and physical activity patterns for children, and are also preventing child malnutrition in all its forms (i.e. undernutrition, micronutrient deficiencies, and obesity and other nutrition related chronic diseases) (Aktas, 2017). Keeping foods like fruit, milk, and fruit-milk at school may be important in shaping the food variety and portion control at lunchtime. Non-alcoholic drinks that contain sugar that is consumed in schools and low-nutritional foods can cause that unhealthy eating habits to emerge (Wordell et al., 2012; Cebirbay et al., 2011). The present health conditions are important for adolescents; possible future health problems are not perceived as a worrying situation by them; and different priorities push health and nutrition issues into the background (Wouters et al., 2010).

In this study, the aim was to show how the training on nutrition at schools affect the level of nutrition habits of adolescents; and to determine the levels of the changes that were detected in the pre-training and post-training nutrition habits. In parallel to this; education in adolescents is aimed to show how effective they are in changes in eating habits

Materials and Methods

Material

The study was conducted with a total of 540 students from the 5th, 6th, 7th, and 8th Grade students (284 males and 256 females) attending Alparslan Secondary School of Malazgirt district, National Education Directorate of Mus Turkey.

Methods

The study was conducted in two stages. In the first stage, 540 questionnaires that had 39 questions were applied to the students who were trained; and the children were given nutrition training; the training was taught by an expert dietician throughout a one-week, healthy and correct nutrition, healthy breakfast habits, healthy nutritional items, face and visual materials. Nutrition education provided by using modern education tools with the active participation of students. The training were given by the researchers. And after 20 days, another 540 questionnaires were applied again. The data of a total of 540 pre-training and 540 post-training students were recorded in terms of their eating habits, regular breakfast and healthy food selection before and after the

training study. Training on nutrition habits had not been provided before in the study school. The experimental method was used in the study. The experimental design of the study is a single group pre-test, final-test model was applied in the study. The Questionnaire Model was used in the present study. The Questionnaire Form, which was developed as a data collection tool, was preferred because it is an appropriate tool in data collection. The questionnaire consisted of three parts. In the first part, there were questions on determining the information about the students and their families; in the second part, there were questions on determining the eating habits of the students; and in the third part, there were questions on determining the frequency of food consumption. The height measurements of the children were made by using the Harpenden Stadiometer (ADE/Hamburg, MZ10020) ultrasonic height measurement unit with an accuracy of 0.1 cm sensitivity, as the individual was standing parallel to the ground with nothing to affect the measurement, with light clothing; and shoes removed; the weight of the individuals were measured with the InBody230 (MW160) Bioelectrical Impedance Body Analyzer device. While the height and weight of the students were measured; body weight and height measurement procedures were applied to 12 and older age groups (TBSA, 2010). The data to determine the nutrient consumption frequency consisted of a 5-point Likert Scale as “Every day”; “5-6 times a week”, “at least 3-4 times a week”, “1-2 times a week”, “Never”. The Questionnaire Form was applied to the students who participated in the study under the surveillance of the author

of the study. The necessary explanations about the questionnaire were made to the students; it was accepted that the students gave accurate and unbiased answers to the questions.

Statistical Analysis

The questionnaire data were entered into Microsoft Excel; and the statistical evaluation of the data was made with the IBM SPSS Statistics 17® Package Program; and the results were evaluated by performing T-test, ANOVA and correlation tests. A value of $P < 0.05$ was considered to be statistically significant.

Ethical Principles

The study protocol was approved by the Secretary General’s Office of Bitlis Eren University on 22.12.2016 and with the Ethical Board Approval with the number E.3624 on 13.12.2016 with 2016/16-VIII decision.

Results and Discussion

Demographical Characteristic

No specific selections were made for the gender distributions of the students who were included in the present study. Participation was formed a class-based manner, and the age range was distributed according to the numbers of the students in the classes. The number of students who were 10 years old due to the early start to school, and the ones who were 10 years of age due to the late start to school was also included in the table.

Table 1. The gender, age and grade distributions of the students

Gender distribution of students						
Gender	n	%			Total	
Boys (Male)	284	52.6			540	
Girls (Female)	256	47.4			100.0	
Distribution of students according to classes						
Classes	5 th Class	6 th Class	7 th Class	8 th Class	Total	
n	151	122	138	129	540	
%	27.9	22.6	25.6	23.9	100.0	
Body Mass Index (BMI) values by age groups comparisons						
Age Range	n	Mean ± SD	Minimum	Maximum	F	P
10 years old	37	17.50 ± 3.01	12.81	25.57	5.497	0.000
11 years old	107	16.97 ± 2.31	10.06	22.26		
12 years old	123	17.88 ± 3.07	13.13	26.84		
13 years old	134	18.44 ± 3.14	11.11	32.47		
14 years old	115	18.88 ± 3.01	12.50	29.14		
15 years old	21	19.36 ± 1.85	16.98	23.15		
16 years old	3	19.48 ± 4.67	14.87	24.22		

SD: Standard Deviation

When the BMI values of the students were examined, they were ranked according to their ages and the BMI averages were given. The expected difference that was based on age was found to be significant ($P < 0.05$).

When the educational status of the parents was examined it was determined that literacy levels in mothers were found to be 30.2% (163), in fathers 5.2% (28); again 3.3% (18) of the

mothers and 14.4% (78) of the fathers were university graduates. There was a significant relation between fathers' educational levels and the having breakfast habits of the children ($P = 0.015$); the income levels of the families and what the children brought to school to eat ($P = 0.021$); and where the children ate lunch ($P = 0.028$) ($P < 0.05$).

The average BMI, height and weight values based on gender and age of the students are given in Table 3.

Table 2. Educational status of the parents

	Father education		Mother education	
	n	%	n	%
Reader-Writer Not	163	30.2	28	5.2
Primary education	298	55.2	221	40.9
High school	61	11.3	213	39.4
University	18	3.3	78	14.4
Total	540	100.0	540	100.0

Table 3. Body measurement analysis values according to gender and age

	Age	Boys (M)		Girls (F)		P
		n	Mean ± SD	n	Mean ± SD	
BMI	10.00	20	17.37 ± 2.61	17	17.64 ± 3.50	0.043
	11.00	59	17.56 ± 2.23	48	16.26 ± 2.23	
	12.00	69	18.29 ± 3.08	54	17.37 ± 3.00	
	13.00	64	18.71 ± 3.29	70	18.20 ± 3.01	
	14.00	60	18.81 ± 2.65	55	18.96 ± 3.38	
	15.00	11	19.40 ± 2.05	10	19.32 ± 1.72	
	16.00	1	24.22	2	17.11 ± 3.17	
Height	10.00	20	1.37 ± 0.05	17	1.39 ± 0.07	0.664
	11.00	59	1.40 ± 0.09	48	1.37 ± 0.07	
	12.00	69	1.45 ± 0.09	54	1.46 ± 0.09	
	13.00	64	1.52 ± 0.07	70	1.53 ± 0.07	
	14.00	60	1.58 ± 0.10	55	1.56 ± 0.08	
	15.00	11	1.62 ± 0.10	10	1.54 ± 0.09	
	16.00	1	1.60	2	1.65 ± 0.02	
Weight	10.00	20	32.85 ± 5.65	17	34.11 ± 1.67	0.830
	11.00	59	35.05 ± 7.30	48	30.87 ± 6.17	
	12.00	69	38.84 ± 7.19	54	37.50 ± 8.42	
	13.00	64	43.84 ± 8.76	70	42.91 ± 7.12	
	14.00	60	47.55 ± 9.17	55	46.03 ± 7.86	
	15.00	11	51.72 ± 9.26	10	46.20 ± 6.81	
	16.00	1	62.00	2	47.00 ± 9.89	

Table 4. The nutrition habits of the students before and after the training

Pre-and Post-Training Nutrition Habits in Adolescents								
					Correlation		T-Test	
Habits	Answers given	TS	n	Mean ± SD	r	P	t	P
Having breakfast habit in the morning	A-Daily, B-3-4 times a week, C-Weekly 1 day D-do not	Pre-T	540	1.44 ± 0.80	0.189	0.000	8.301	0.000
		Post-T	540	1.15 ± 0.37				
Pre-T: A %57.3(310), B %11.8(64), C %16.1(87), D%14.6(79) Post-T: A %73.8(399), B%12.6(68), C %10.0(54), D %3.5(19)								
Where do you eat lunch?	A- At home B-At school, C-Outside	Pre-T	540	1.07 ± 0.32	0.030	0.485	-2.222	0.027
		Post-T	540	1.13 ± 0.44				
Pre-T: A %90.9(491) B %5.0(27) C %4.1(22) Post-T : A %93.5(506), B %4.6(25), C %1.7(9)								
What do you bring with the highest frequency from home to eat during breaks?	A-Fresh Fruit, B-Dried Fruit, C-Dried Fruit, D-Milk-Ayran, E-Ready Fruit Juice, F-Ready Cake Biscuits, G-Home Made Cake, H-none	Pre-T	386	7.09 ± 7.95	0.022	0.660	-1.071	0.285
		Post-T	386	9.00 ± 8.19				
Pre-T; A-%15.3(83), B-%0.9(5), C-%2.1(11), D-%3.5(19), E-%2.1(11), F- %5(27), G-%5.5(30), H-%65.7(355), Post-T: A-%7.4(40), B-%0.3(2), C-%0.3(2), D-%2.1(11), E-%5.1(28), F- %9.6(52), G-%4.6(25), H%70.5(381),								
Do you think you receive adequate and balanced nutrition?	A-Yes B-No	Pre-T	540	1.06 ± 0.25	0.051	0.239	-8.606	0.000
		Post-T	540	1.26 ± 0.47				
Pre-T: A-%74.5(403), B-25.4(137), Post-T: A-%93.0(503), B-%6.8(37)								
How often do you consume milk, yogurt and ayran?	A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None	Pre-T	540	2.79 ± 1.23	0.169	0.000	1.001	0.317
		Post-T	540	2.72 ± 1.22				
Pre-T :A-%19.4(105), B- %21.5(115), C-%29.2(158), D-%20.5(111), E-%9.4(51) Post-T:A- %23.1(125), B- %18.3(98), C-%26.4(143), D-%27(146), E-%5.2(28)								
How often do you consume cheese?	A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None	Pre-T	540	2.13 ± 1.07	0.126	0.003	-0.464	0.643
		Post-T	540	2.16 ± 1.42				
Pre-T: A-%51,2(277), B- %14(76). C-%11,3(60), D-%13.9(75), E-%9.6(52) Post-T:A- %37.9(205), B- %23.8(129), C-%25.9(140), D-%11.7(62), E-%0.7(4)								
How often do you consume red meat, chicken and fish?	A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None	Pre-T	540	1.75 ± 1.10	0.037	0.385	-17.203	0.000
		Post-T	540	2.93 ± 1.17				

<p>Pre-T: A-%59.1(320), B- %19(103). C-%11,8(63). D-%6.5(35), E-%3.5(19) Post-T:A- %15.2(82), B- %19.6(105), C-%29.8(161), D-%27.9(151), E-%7.6(41)</p>								
How often do you consume egg?	<p>A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None</p>	Pre-T	540	2.49 ± 1.06	0.144	0.001	-6.510	0.000
		Post-T	540	2.92 ± 1.29				
<p>Pre-T: A-%21.1(114), B- %29.4(159), C-%30.7(166), D-%16.5(88), E-%2.4(13) Post-T:A- %20.7(112), B- %15(81). C-%24.6(132), D-%30.1(163), E-%9.6(52)</p>								
How often do you consume legumes?	<p>A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None</p>	Pre-T	540	2.47 ± 1.20	0.226	0.000	-14.187	0.000
		Post-T	540	3.37 ± 1.14				
<p>Pre-T: A-%29(157), B- %21.5(115), C-%26.6(144), D-%18.7(101), E-%4.3(23) Post-T:A- %10.4(56), B- %9.8(53), C-%24.8(134), D-%42.3(228), E-%12.8(69)</p>								
How often do you consume green-leaf vegetables?	<p>A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None</p>	Pre-T	540	2.87 ± 1.18	0.164	0.000	-4.402	0.000
		Post-T	540	3.17 ± 1.24				
<p>Pre-T: A-%16.3(88), B- %21.4(116), C-%26.8(144), D-%29(157). E-%6,5(35) Post-T:A- %12.8(69), B- %17.6(94), C-%23.7(128), D-%31.4(170), E-%14.6(79)</p>								
How often do you consume Potatoes?	<p>A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None</p>	Pre-T	540	2.77 ± 1.28	0.164	0.000	-1.206	0.228
		Post-T	540	2.86 ± 1.13				
<p>Pre-T: A-%21.8(118), B- %20.1(109), C-%26.3(141), D-%21.8(118), E-%10(54) Post-T:A- %15.9(86), B- %21.5(115), C-%27(146), D-%32.2(174), E-%3.5(19)</p>								
How often do you consume fresh fruits?	<p>A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None</p>	Pre-T	540	2.49 ± 1.11	0.130	0.002	3.458	0.001
		Post-T	540	2.27 ± 1.16				
<p>Pre-T: A-%24.4(132), B- %24.5(132), C-%29.9(161), D-%19.4(105), E-%1.8(10) Post-T:A- %35.3(191), B- %22.4(120), C-%24.4(132), D-%15.5(84), E-%2.4(13)</p>								
How often do you consume bread?	<p>A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None</p>	Pre-T	540	1.92 ± 1.06	0.085	0.048	7.719	0.000
		Post-T	540	1.47 ± 0.97				
<p>Pre-T: A-%47.5(257), B- %23.7(127), C-%18.3(99), D-%9.6(52), E-%0.9(5) Post-T:A- %76.5(414), B- %8.7(47), C-%7.6(41), D-%5(27), E-%2(11)</p>								
		Pre-T	540	1.43 ± 0.89	0.035	0.421	-19.035	0.000

How often do you consume bulgur, rice and pasta?	A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None	Post-T	540	2.59 ± 1.13				
<p>Pre-T: A-%76.9(415), B- %9.4(51), C-%8.7(47), D-%3.7(20), E-%1.3(7) Post-T:A- %22.2(120), B- %22.8(123), C-%31.6(171), D-%20.2(109), E-%3.1(17)</p>								
How often do you consume olives?	A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None	Pre-T	540	2.17 ± 1.13	0.102	0.018	-5.888	0.000
		Post-T	540	2.63 ± 1.57				
<p>Pre-T: A-%37.8(204), B- %24.1(130), C-%23.7(128), D-%12.2(66), E-%2.2(12) Post-T:A- %38.7(209), B- %12.8(69), C-%14(76), D-%15(81), E-%19.4(105)</p>								
How often do you consume butter?	A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None	Pre-T	540	2.66 ± 1.55	0.098	0.022	-6.536	0.000
		Post-T	540	3.25 ± 1.54				
<p>Pre-T: A-%36.3(196), B- %14.6(79), C-%14.4(78), D-%15.3(83), E-%19.2(104) Post-T:A- %22.6(122), B- %10.7(58), C-%16.6(90), D-%18.9(102), E-%31.1(168)</p>								
How often do you consume margarine?	A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None	Pre-T	540	3.77 ± 1.31	0.169	0.000	-0.397	0.692
		Post-T	540	3.80 ± 1.37				
<p>Pre-T: A-%10.6(57), B- %7.4(40), C-%14.1(76), D-%29.6(160), E-%38.3(207) Post-T :A- %11.9(64), B- %6.9(37), C-%14.6(79), D-%22(119), E-%44.6(241)</p>								
What is your frequency of consuming drinks with sugar?	A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None	Pre-T	540	4.10 ± 1.17	0.103	0.017	19.305	0.000
		Post-T	540	2.59 ± 1.51				
<p>Pre-T: A-%6.7(36), B- %4.1(22), C-%11.6(63), D-%27.7(150), E-%49.7(269) Post-T:A- %39.4(213), B- %11.3(61), C-%13.7(74), D-%21.9(118), E-%13.7(74)</p>								
How often do you consume jam and cream chocolate?	A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None	Pre-T	540	3.05 ± 1.50	0.104	0.015	3.439	0.001
		Post-T	540	2.75 ± 1.48				
<p>Pre-T: A-%25.6(138), B- %12(65), C-%16.3(88), D-%23.7(128), E-%22.4(121) Post-T : A- %31.3(269), B- %15(81), C-%16.3(88), D-%21.5(116), E-%15.9(86)</p>								
How often do you consume honey, boiled grape juice, or sesame oil with boiled grape juice?	A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None	Pre-T	540	2.80 ± 1.42	0.212	0.000	-3.377	0.001
		Post-T	540	3.07 ± 1.55				

<p>Pre-T: A-%28(151), B- %15.4(83), C-%19.6(106), D-%22.8(123), E-%14.3(77) Post-T:A- %26.3(142), B- %12.6(68), C-%14.3(77), D-%21.3(115), E-%26.6(138)</p>								
How often do you consume desserts with milk and syrup?	<p>A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None</p>	Pre-T	540	3.13 ± 1.48	0.131	0.002	-4.478	0.000
		Post-T	540	3.48 ± 1.19				
<p>Pre-T: A-%20.4(110), B- %17(92), C-%16.3(88), D-%20.9(113), E-%25.4(137) Post-T:A- %9.1(49), B- %12(65), C-%20.2(109), D-%39.1(211), E-%19.6(106)</p>								
How often do you consume coke, fizzy drinks, ready-made fruit juice?	<p>A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None</p>	Pre-T	540	3.69 ± 1.11	0.056	0.192	6.171	0.000
		Post-T	540	3.23 ± 1.38				
<p>Pre-T: A-%6.3(34), B- %8.1(44), C-%19.6(106), D-%41.5(224), E-%24.4(132) Post-T:A- %18(97), B- %12.8(69), C-%17(92), D-%32(173), E-%20.2(109)</p>								
How often do you consume tea?	<p>A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None</p>	Pre-T	540	3.67 ± 1.21	-	0.981	24.461	0.000
		Post-T	540	1.83 ± 1.26				
<p>Pre-T: A-%63(340), B- %12(65), C-%9.3(50), D-%10.2(55), E-%5.6(30) Post-T:A- %56.3(304), B- %16.5(89), C-%11.3(61), D-%10.6(57), E-%5.4(29)</p>								
How often do you consume chips, biscuits, and cereals?	<p>A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None</p>	Pre-T	540	1.92 ± 1.25	-	0.753	-12.946	0.000
		Post-T	540	2.96 ± 1.36				
<p>Pre-T: A-%18(97), B- %12.8(69), C-%17(92), D-%32(173), E-%20.3(109) Post-T:A- %19.8(107), B- %18.3(99), C-%24.8(134), D-%19.8(107), E-%17.2(93)</p>								
How often do you consume salami and sausages?	<p>A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None</p>	Pre-T	540	3.49 ± 1.23	0.160	0.000	0.153	0.878
		Post-T	540	3.48 ± 1.36				
<p>Pre-T: A-%9.1(49), B- %11.5(62), C-%25(135), D-%30(162), E-%24.4(132) Post-T: A- %11.3(61), B- %15.7(85), C-%17.8(96), D-%23.9(129), E-%31.3(169)</p>								
How often do you consume fermented sausages?	<p>A- Daily, B- 5-6 times a week, C- 3-4 times a week D- 1-2 times a week E-None</p>	Pre-T	540	4.14 ± 0.98	0.261	0.000	13.828	0.000
		Post-T	540	3.28 ± 1.33				
<p>Pre-T: A-%19.8(107), B- %18.3(99), C-%24.8(134), D-%19.8(107), E-%17.2(93) Post-T:A- %13.7(74), B- %14.8(80), C-%22.8(123), D-%26.3(142), E-%22.4(121)</p>								

TS: Training Status; Pre-T: Pre-Training; Post-T: Post-Training; SD: Standard Deviation

When the BMI values of the boys were compared with those of the girls according to age, the difference between them were found to be significant ($P=0.043$). No significant differences were detected between the height and weight values according to the gender variable ($P>0.05$). When the percentile values were compared in children according to body weights, it was determined that the weights of the males were between 25-50% percentile; height values were between 10-25 percentile; and the percentile values of the BMI averages were 25%. It was also determined that the weights of the girls were between 25-50% percentile; their heights were between 10-25% percentile; and the percentile value of the BMI average value was 15-25%.

To perform an obesity evaluation in children and adolescents, the age and gender-specific BMI values were established. According to these evaluation criteria, BMI-percentile the value being below 5 shows malnutrition; its being between 5-85 shows normal weight; being between 86-95 shows being overweight (slightly obese), being over 95 shows obesity (Bundak et al., 2006; Neyzi et al., 1978; Neyzi et al., 2008). The body parameters according to gender (height, weight, BMI) show normality with the percentile values formed in Turkish children.

The nutrition habits of the students before and after the training are given in Table 4.

The percentages of the answers given by the students to the questions before and after the training are given under each question category. Significant differences were determined before and after the training between having breakfast in the morning ($r=0.186$); What is brought from home to eat during breaks ($r=0.022$); Thinking that s/he has adequate and balanced nutrition ($r=0.051$); Consuming habits of milk, yogurt and ayran ($r=0.169$); Red meat, chicken and fish ($r=0.037$); Eggs ($r=0.144$); Legumes ($r=0.226$); Green-leaf vegetables ($r=0.164$); Fresh fruit ($r=0.130$); Bread ($r=0.085$); Bulgur, rice and pasta ($r=0.035$); Olives ($r=0.102$); Butter ($r=0.098$); Drinks with sugar ($r=0.103$); Jam, cream chocolate ($r=0.104$); Honey, boiled grape juice or boiled grape juice with sesame oil ($r=0.212$); Dessert with milk and syrup ($r=0.131$); Coke, fizzy drinks, ready-made fruit juice ($r=0.056$); Tea ($r=-0.001$); Chips, biscuits, cereals ($r=-0.014$) and Sausage ($r=0.261$) ($P<0.05$); and a very weak a correlation was detected between them. There was a very weak and negative relationship between consumption habits of tea, chips, biscuit, and cereals. No significant differences were determined between the variables Where lunch is eaten ($r=0,030$); consuming Cheese ($r=0.126$); Potatoes ($r=0.164$); Margarine ($r=0.169$); Salami and sausage ($r=0.160$) before and after the training ($P>0.05$); however, a

very weak and positive correlation was determined between them.

There are reports that children in school age are more likely to change their ways of doing than their right behavior. It is very common in children and adolescents to skip breakfast. It was determined that skipping breakfast was more in adolescent girls than in males (Steyn, 2010). This a situation has been explained with by fact that skipping breakfast was a weight control method in adolescent girls (Keshi-Rahkonen et al., 2003). Pulp, vitamins A, C and E, B₆, B₁₂ and folate, iron, calcium, phosphorus, magnesium and potassium values of the individuals who skipped breakfast were found to be lower than in those who did not skip breakfast (Deshmukh-Taskar et al., 2010). In another study, it was reported that skipping breakfast could affect concentration, learning, and school performance (Story and Stang, 2005). In our study, a significant difference was detected between the habits of not having breakfast according to gender ($P=0.021$) ($P<0.05$). Again, according to gender, there was a significant difference between healthy and balanced nutrition habits ($P=0.001$) ($P<0.05$). It was found in a study conducted in the Mardin that overweight children between the ages of 7-15 consumed toast, coke, chips and chocolate more (Battaloglu, 2014); and in another study, it was reported those children ate bagels, chocolate, biscuits at the highest level, and preferred drinks like water, cola, fizzy drinks and fruit juice (Orhan and Celik, 2014). In our study, the rate of those who consumed coke, fizzy drinks and ready-made drinks 3-4 times a week was found to be 41.5% before the training; however, after the training, this rate decreased significantly. As a result of the training, when the benefits of other foods were learned, the diversity in food consumption increased; and after the training, the students consuming meat, poultry and fish showed a significant difference ($P<0.05$); however, a weak correlation ($r=0.037$) was also found between them. No significant differences were detected in terms of the gender variable ($P>0.05$). In another the study, a significant difference was reported based on the gender variable (Cebirbay et al., 2011). In a study conducted with children aged between 4 and 14 years and adolescents, it was determined that girls loved fruits and vegetables more than boys; and boys loved fatty and foods with sugar, meat products, processed meats and eggs more than girls (Cooke et al., 2005). In our study, a significant difference was detected after the training in the egg consumption of the students who consumed eggs every day before the training ($P<0.05$); and the relation between them was found to be very weak. According to the results of the research conducted before and after the training, sausages, tea, milk, fresh fruits and egg consumption (Sabbag and

Surucuoglu, 2012). The relationship between pre-training and post-training data in our study was significant ($P < 0.05$). In another a study, it was determined that most of the students who had very good, moderate and low nutrition knowledge drank tea; drinking coffee was very common among the subjects (60.2%); and 26.1% of those who had very good nutrition knowledge consumed milk and ayran; and 20% of them consumed fruit juice (Birer and Ersoy, 1987). In our study, although a significant difference was detected in terms of consuming tea before and after the training, there was a very weak negative relationship between them. In a study that was conducted for the purpose of determining the nutrition knowledge and habits of senior high school students, it was determined that the students preferred coke at the intermediary meals were cola with 27.9%; and the lowest consumed ones were yogurt and milk with 14.9% (Sagun, 1987). No significant differences were detected between the consumption frequencies for this product group ($P > 0.05$).

In a study, it was determined in the weight and height measurements in boys and girls aged 12 years, girls were found to be overweight and taller than their boys (Neyzi et al., 1978). In the present study of ours, when we examined the 12-year age range participants, we found that their heights of the males and females were nearly the same; and there was a slight difference in the weight averages in favor of the males; however, the difference between males and females was not found to be significant ($P > 0.05$). In another study, it was found that the sugar-chocolate consumption of the students was found to be 88% as once or twice or more per week; chips-potato consumption was like 71.7%; and coke consumption were as 40.4% (Kutlu and Civi, 2009). In another a study, it was shown that the children consumed sweets and chocolate (32.8%), chips, cracker etc. (15.4%) and fizzy drinks (59%) (Rakicioglu et al., 2000). In our study, after the training, those who said that they consumed coke and fizzy drinks 1-2 times a week were found to be 32%, and those who said they consumed chips-biscuit-cereals were found to be 19.8%. In a survey, results revealed 83.3% change in students' nutrition habits following education program (Sebbag, 2017). In our study this rate was found as 76.92%.

Conclusions

As a conclusion, these data show that food selection may be developed with learning. As a result of the nutrition training provided by the dietitian in the adolescent children, there were significant differences despite the positive relation compared to the pre-training period. This study showed that

it is important to provide nutrition trainings at schools in order to acquire healthy eating habits. Classes on healthy food selection and nutrition should be included in the curricula of schools and appropriate awareness about healthy lifestyle and its effects must be provided. The trainings should focus on healthy eating habits and lifestyles and should be given to all children in early staged of their developments.

Compliance with Ethical Standard

Conflict of interests: The authors declare that for this article they have no actual, potential or perceived the conflict of interests.

Ethics committee approval: The study protocol was approved by the Secretary General's Office of Bitlis Eren University on 22.12.2016 and with the Ethical Board Approval with the number E.3624 on 13.12.2016 with 2016/16-VIII decision.

Acknowledgment: Due to contributions; Mus province, Malazgirt district, Alparslan Secondary School, we thank the teachers and administrators

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