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Meal Behavior and Food Preferences by Different Body Types of 6th Grade Elementary School Children Residing in Anyang City

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ABSTRACT

The purpose of this study was to investigate meal behavior and food preferences of children with different body types. This survey was conducted using a questionnaire for 274 boys and 257 girls in the 6th grade of elementary schools in Anyang city. A questionnaire method was used. Food preferences of 14 food groups were tested with 5 likert scale points. Body types were divided with weight-length index(WLI) calculated by height and weight. The cut-off point for the underweight children was 90, and that of the overweight children was 110. The mean weight of the underweight children(26.2%) was 31.9±4.0kg, and that of the overweight children(26.9%) was 49.4±6.3kg. The average BMI of overweight children and underweight children was 21.0kg/m^2 and 15.5kg/m^2 respectively. Perceived health status was different based on body types, and more of the overweight children answered they are healthy compared to the underweight children. Body types were not significantly different based on parents' education and occupation. Only 56.7% of the children ate breakfast at a regular time, 60% and 42.9% of the children had their lunch and dinner at regular time, respectively. Higher percetage of overweight children had irregular breakfast(20.1%) and skipped their breakfast and dinner compared to the other groups, however only dinner was statistically significant. The most frequently answered reasons for skipping meals were 'no time to eat'(50%) and 'bad side-dishes'(17.0%). Food preference was not different among the body type groups, however rice-cake was preferred in the underweight group, as well as milk and lettuce were preferred in overweight group. The preferences for milk and grain powdered drink(misitgaru) were same as for a carbonated soft drink. Focusing pubericant, it is necessary to have a regular breakfast. With regard to the importance of nutrition and health for children, the nutrition education for meal behavior and food preference to achieve a balanced diet should be considered. (*J Community Nutrition* 2(2) : 97~104, 2000)

KEY WORDS : meal behavior · food preference · body type · 6th grade elementary school children.

Introduction

Several studies have found that food preference is an important barrier to change dietary behavior for health promotion. Not wanting to give up favorite foods like was the most major and frequently mentioned obstacle to achieve a healthful diet. Based on the study of Harneck and co-workers(Harneck et al. 1997), taste preference appears to be a barrier to dietary habit changes for many Americans. In the same study, the relationship between food preferences and specific dietary behaviors were assessed for chronic disease prevention. Most people think that some foods prevalently selected and frequently consumed would not be good for the health of children. For example, the consumption of sweet foods has concern as a possible cause for obesity, hyperactivity and dental caries. This concern may affect future food preferences. Also it is difficult to determine the relative importance of the factors which affect food preference.

Some of the neurological, physiological, psychological and cultural basis of hunger and appetite influence the dietary behavior of school children. Trends in the young population show a high preference for one dish food with rice. The palatability differences of age and sex were also existed(Lee 1988 ; Joo & Park 1998 ; Kim & Lee 1998). The senses of taste and smell and the development of palatability might influence what the children accept as preferable foods. To educate to have healthful dietary behavior is time consuming, and/or difficult. With regard to the influence of food perception on dietary behavior, several findings(Joo & Park 1998 ; Raben et al. 1995 ; June et al.

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1998) are reported. For Americans, this perception was not predictive of fruit and vegetables(Harneck et al. 1997). Changes in life-style and activity level(sedentary or active) would also alter nutrient needs, dietary behavior, and food preference.

With the increasing prevalence of child obesity, studies of influencing factors including meal behavior and food preference are needed to prevent chronic disease in later life of children. However there are many potentially important factors to influence on a child's choice of food for good health. Therefore, the purpose of this study was to investigate dietary behaviors and food preferences by different body types of 6th grade elementary school children.

Subjects and Methods

1. Subjects

The subjects were 531 of 6th grade elementary school children(274 males and 257 females) in Anyang City. The preliminary survey was done in March of 1998 ; main interviews were done in April of 1998.

2. Method

1) A questionnaire and self-writing method were used. The questionnaire included questions on individual environments(occupation and education level of parents, and self consciousness of health status), the state of meal regularity and reason of skipping meals.

2) Weight and height measurement were taken from the health chart kept in the students' situation book and Weight-Length Index(WLI) which is the most appropriate index for a child's body mass(Pipes 1985 ; Kim & Park 1995) were calculated. The calculation equation was :

$WLI=(A/B)\times 100$

A=actual weight(kg)/actual height(cm)

B=50th percentile expected weight(kg) for age/50th percentile expected height(cm) for age

The 50th percentile derived from the reference body (height and weight) of Korean RDA revised in 1995. Subjects were divided into three groups by WLI(Normal WLI : 90-109 underweight WLI : under 90, and overweight WLI : over 110).

3) Food preference was tested with 5 likert scale points. Forteen food groups were tested and each group was consisted of 10 foods.

4) The dependant variables were compared among different body types. Statistical analysis was done using SAS program(ver. 6.12). Frequency, mean, and SD were calculated and significance were tested by χ^2-test and F-values of food preference score means.

Results and Discussion

1. General characteristics

Of the 531 subjects, who completed this study, boys 274(51.6%) and girls 257(48.4%) were in the 6th grade of elementary school in Anyang city. The average age of the children was 11.8 years. Twenty-seven percent of the children were overweight and 26% were underweight(Table 1). The overweight children were taller and weighed more(Table 2). It could suggest a fast velocity of growth in overweight children. The body mass index of overweight group was 21.0kg/m^2 and 15.5kg/m^2 for the underweight group. Over a half(55.6 %) of the children felt healthy. Perceiv-ed health status was significantly different with body types, and overweight children felt they are healthier than the other groups are(Table 1).

There are many dimensions that define the socioeconomic status of a family or a household. By the suggestion of the factors influencing food preference and dietary behavoir of children, family income and edu-

Table 1. Gender and self-consciousness health states according to different body types of the subjects

	Gender		Self consciousness of health				Total
	Male	Female	No answer	Healthy	Normal	Weak	
Underweight	72(13.6)	67(12.6)	9(1.7)	58(10.9)	54(10.2)	18(3.4)	139(26.2)
Normal	124(23.4)	125(23.5)	6(1.1)	145(27.3)	88(16.6)	10(1.9)	249(46.9)
Overweight	78(14.7)	65(12.2)	2(0.4)	92(17.3)	41(7.7)	8(1.5)	143(26.9)
Total	274(51.6)	257(48.4)	17(3.2)	295(55.6)	183(34.5)	36(6.8)	531(100)
χ^2	0.84		26.81***				

* : $p<0.05$ ** : $p<0.01$ *** : $p<0.001$

cational status of parents were compared among different body type of the children. As shown in Table 3, 48% of fathers are businessman and 60% of mothers are home manager. With regard to the parents' occupation and education level, no relationship was found with the body type of the children. Kinsey(1994) also reported there is no significant difference between body type of children and the parents' status of education level and occupation. Also, same result was reported for obese and nonobese children in a rural area of Korea(Kim et al. 1998).

Table 2. The physical states according to different body types of the subjects

	Age	Height	Weight	BMI
Underweight	11.8±0.7	144.0±6.4	32.6±4.6	15.5±1.2
Normal	11.8±0.5	148.0±6.5	38.6±3.6	17.6±1.3
Overweight	11.7±0.5	152.8±6.9	49.2±6.5	21.0±2.1
Mean	11.8±0.6	148.5±7.3	40.1±7.8	18.1±2.5
F-value	2.33	60.3***	550.5***	474.0***

* : $p<0.05$ ** : $p<0.01$ *** : $p<0.001$

2. Meal behaviors of the subjects

Meal behaviors of the elementary school children are of interest in part because these behaviors may reflect their future health as they become national manpower sources. Public health campaigns typically inform people about which behaviors are needed to change.

For most of the children, one to two meals plus snacks were eaten away daily from the direct influence of the family. With the increasing length of time spent at school and after school classes, more children

Table 3. The distribution of parents' job and education level according to different body types of the subjects.

		Underweight	Normal	Overweight	Total
Father's job	No answer	4(2.9)	6(2.4)	3(2.1)	13(2.5)
	Businessman	66(47.5)	122(49.0)	67(46.9)	255(48.0)
	Officeman	19(13.7)	35(14.1)	24(16.8)	78(14.7)
	Teacher	3(2.2)	9(3.6)	6(4.2)	18(3.4)
	Military	0(0.0)	0(0.0)	1(0.7)	1(0.2)
	Marketing service	11(7.9)	18(7.2)	9(6.3)	38(7.2)
	Industrial worker	5(3.6)	4(1.6)	3(2.1)	12(2.3)
	Liberal profession	22(15.8)	41(16.5)	17(11.9)	80(15.1)
	Others	9(6.5)	14(5.6)	13(9.1)	36(6.8)
Mother's job	No answer	4(2.9)	3(1.2)	1(0.7)	8(1.5)
	Business worker	14(10.1)	24(9.6)	16(11.2)	54(10.2)
	Office worker	7(5.0)	6(2.4)	7(4.9)	20(3.8)
	Teacher	7(5.0)	7(2.8)	5(3.5)	19(3.6)
	Marketing service	6(4.3)	8(3.2)	12(8.4)	26(4.9)
	Industrial worker	2(1.4)	1(0.4)	0(0.0)	3(0.6)
	Liberal profession	6(4.3)	17(6.8)	10(7.0)	33(6.21)
	Home manage only	77(55.4)	161(64.7)	81(56.6)	319(60.1)
	Others	16(11.5)	22(8.8)	11(7.7)	49(9.2)
Father's education	Elementary school grad.	0(0.0)	3(1.2)	1(0.7)	4(0.8)
	Middle school grad.	2(1.4)	2(0.8)	2(1.4)	6(1.1)
	High school grad.	43(30.9)	71(28.5)	36(25.2)	150(28.3)
	Received univ. edu.	75(54.0)	132(53.0)	81(56.6)	288(54.2)
	Over graduate school edu.	17(12.2)	33(13.3)	20(14.0)	70(13.2)
Mother's education	No answer	6(4.3)	9(3.6)	4(2.8)	19(3.6)
	Elementary school. grad.	2(1.4)	5(2.0)	2(1.4)	9(1.7)
	Middle school. grad.	7(5.0)	4(1.6)	3(2.1)	14(2.6)
	High school grad.	69(49.6)	133(53.4)	74(51.7)	276(52.0)
	Received univ. edu.	48(34.5)	90(36.1)	54(37.8)	192(36.2)
	Over graduate school edu.	7(5.0)	8(3.2)	6(4.2)	21(4.0)
Total		139(100)	249(100)	143(100)	531(100)

lose meal regularity and skipping meals. In this study, dinner irregularity(sometimes and usually) was more frequent(55%) than that of the breakfast and lunch (Table 4). Forty percent of the subjects had breakfast irregular(sometimes and usually), which was more frequent than in the ChunJu area study(Joo & Park 1998) in which 36 percent of the subjects answered their breakfasts are irregular. There was a significant difference in breakfast regularity among the different body types. Irregular breakfast was more frequent in overweight children, however higher percentage of normal children answered they sometimes have irregular breakfast.

In this study, breakfast was more irregular than either lunch or dinner. But in 3rd grade to middle school students(Ko et al. 1991), lunch was more irregular and more snacks were eaten on the weekend. Park et al.(1995) found forty-three percent of college students were found to eat breakfast less than twice a week. We could suggest that for the health of elementary school children, meal regularity should be stabilized during both week days and weekend.

Breafast was skipped more frequently than other meals. However there is no significant difference among body types(Table 5). The result of meal skipping (29% sometimes and 7% always) is correspondent with the study of Lee's in which 36.6% of 5th grade school children had a habit of skipping meals(Lee 1998). With regards to frequency of skipping breakfast, the result of this study was higher(36%) than that of elementary school children(28.4%) living in appartments in Seoul(Kim et al. 1993). The percentage of children who skip breakfast was 7% in this study, while Kim et al(1993) reported 2.5% of children skipped breakfast every morning. However in Seoul and Kyunggi area, 63-64% of college students have breakfast(Lee & Lee 1995), and this result is similar to the present study where 62% answered they always have breakfast.

Table 4. The distribution of meal regularity according to different body types of the subjects

	Breakfast				Lunch				Dinner				Total
	NA[1]	R[2]	SIR[3]	UIR[4]	NA	R	SIR	UIR	NA	R	SIR	UIR	
Underweight	8	74	42	15	7	84	42	6	7	70	51	11	139
	(5.8)	(53.2)	(30.2)	(10.8)	(5.0)	(60.4)	(30.2)	(4.3)	(5.0)	(50.4)	(36.7)	(7.9)	(100)
Normal	6	151	69	23	6	147	81	15	5	105	109	30	249
	(2.4)	(60.6)	(27.7)	(9.2)	(2.4)	(59.0)	(32.5)	(6.0)	(2.0)	(42.2)	(43.8)	(12.0)	(100)
Overweight	4	76	34	29	8	87	36	12	7	53	65	18	143
	(2.8)	(53.1)	(23.8)	(20.3)	(5.6)	(60.8)	(25.2)	(8.4)	(4.9)	(37.1)	(45.5)	(12.6)	(100)
Total	18	301	145	67	21	318	159	33	19	228	225	59	531
	(3.4)	(56.7)	(27.3)	(12.6)	(4.0)	(60.0)	(29.9)	(6.2)	(3.6)	(42.9)	(42.4)	(11.1)	(100)
χ^2	14.82*				6.50 ns				9.45 ns				

NA[1] : no answer R[2] : Regular SIR[3] : Sometimes irregular UIR[4] : Usually irregular
* : $p<0.05$ ns : no significant

Table 5. The distribution of skipping meals according to different body types of the subjects

	Breakfast				Lunch				Dinner				Total
	NA[1]	AE[2]	SND[3]	UND[4]	NA[1]	AE[2]	SND[3]	UND[1]	NA[1]	AE[2]	SND[3]	UND[4]	
Underweight	4	81	44	10	3	112	22	2	5	113	20	1	139
	(2.9)	(58.3)	(31.7)	(7.2)	(2.2)	(80.6)	(15.8)	(1.4)	(3.6)	(81.3)	(14.4)	(0.7)	(100)
Normal	4	170	63	12	6	189	48	6	3	213	30	3	249
	(1.6)	(68.3)	(25.3)	(4.8)	(2.4)	(75.9)	(19.3)	(2.4)	(1.2)	(85.5)	(12.0)	(1.2)	(100)
Overweight	1	80	47	15	7	111	24	1	5	97	35	6	143
	(0.7)	(55.9)	(32.9)	(10.5)	(4.9)	(77.6)	(16.8)	(0.7)	(3.5)	(67.8)	(24.5)	(4.2)	(100)
Total	9	331	154	37	16	412	94	9	13	423	85	10	531
	(1.7)	(62.3)	(29.0)	(7.0)	(3.0)	(77.6)	(17.7)	(1.7)	(2.5)	(79.7)	(16.0)	(1.9)	(100)
χ^2	11.16				4.904				21.34 **				

NA[1] : no answer AE[2] : Always eat SND[3] : Sometimes don't eat UND[4] : Usually don't eat
** : $p<0.01$ ns : no significant

Skipping meals represents lower nutrients intake. By the result of Cheong(1995), skipping breakfast led to a more often higher intake of snacks in lower body weight group. However in any reason, children had to take every meal with thought of balanced food and optimal nutrition.

The reason for skipping meals was mostly 'no time' (50%)(Table 6). The second reason for skipping meals was different for different by body type, The second frequent answer was 'dislike sidedishes' in normal weight children, but 'to reduce weight' in overweight children. This result was not consistent with the result of Joo & Park(1998) in which 'no appetite'(50%) was most frequently answered, and the second frequent answer was 'no time'(35%).

3. The comparison of food preference among body types

Food perception can be influenced by cultural and social interaction. Nutritional behavior refers to the actual act of consuming food involving food choice. Traditional Korean meals were favored while processed meals were not favored by Koreans(Bermont-Smith & Kim 1994). By the discrimination analysis(Kim et al. 1998), food preference differences between obese and nonobese children revealed meaningful parameters. These foods include fruits, rice cake soups, beans, and milk. Eating rapidly and having a good appetite were suspected as two of the dominant reasons causing obesity among children, however food habit would be little different(Kim et al. 1993). In the case of adult, the intakes of protein, energy and fatty foods were higher among the overweight adults compared to those of normal or underweight people(Kim et al. 1998). In this study food preference scores of all food groups were not significantly different among body types different(Table 7). In the result of the study by Kim and coworkers(1993), most children liked fruits, meats, biscuits and boiled rice mixed with other grains. But in this result, children prefered more of bread, noodls and mandoo than cooked rice. All kinds of vegetables(raw, salted, and scald) scored low in pref-

Table 6. The reason for skipping meal according to different body types of the subjects

	No-answer	No-appetite	No-time	Dislike of side dishes	Weight reduction	Dislike to eat alone	Total
Underweight	8(5.8)	21(15.1)	79(56.8)	24(17.3)	2(1.4)	5(3.6)	139(100)
Normal	22(8.8)	31(12.4)	126(50.6)	49(19.7)	11(4.4)	10(4.0)	249(100)
Overweight	10(11.0)	22(15.4)	61(42.7)	17(11.9)	27(18.9)	6(4.2)	143(100)
Total	40(7.5)	74(13.9)	266(50.1)	90(17.0)	40(7.5)	21(4.0)	531(100)
χ^2				42.64***			

*** : $p<0.001$

Table 7. The preference scores of food groups and cooking according to different body types of the subjects

	Total	Underweight	Normal	Overweight	F-value
Various cooked rices	40.6± 6.5[1)]	40.5± 5.9	40.5± 6.6	41.0± 6.8	0.12
Breads	41.3± 7.1	42.0± 6.6	41.3± 7.4	40.6± 7.0	1.70
Noodles & mandoo	41.9± 6.7	42.0± 6.3	42.0± 6.8	41.5± 7.0	0.56
Rice cake & rice soups(juk)	40.1± 7.1	40.0± 7.6	40.6± 6.6	39.4± 7.4	1.59
Souplike stews	41.7± 6.6	41.7± 6.3	41.6± 6.7	41.8± 6.9	0.01
Pot stews	39.8± 7.6	39.6± 7.3	40.0± 7.9	39.7± 7.6	0.34
Roased & grilled food	42.0± 7.9	41.2± 7.7	42.5± 8.1	41.7± 7.7	1.53
Sauteed & pan boiled food	41.4± 7.6	41.5± 8.8	40.9± 7.6	42.1± 6.4	1.09
Jorim with soy sauce & fried food	40.9± 7.1	41.0± 6.5	40.8± 7.6	41.0± 6.5	0.03
Salted vegetables & soy pastes	33.5±10.5	33.9± 9.8	33.3±11.0	33.6±10.4	0.13
Scalded vegetables & kimchies	39.3± 8.2	39.9± 7.6	38.8± 8.8	39.7± 7.3	0.94
Raw & fermented fish(shellfish)	33.8±11.4	34.1±10.9	33.4±11.6	34.3±11.5	0.31
Vegetables	36.2± 9.0	36.0± 8.7	35.6± 9.7	37.3± 8.1	1.27
Beverages and others	42.6± 7.0	42.7± 6.7	42.6± 7.0	42.4± 7.4	0.10

1) : maximun score=50 points

erence for children, and it was different from adults. Adults like vegetables(Sin & Han 1997). By the result of Sin & Han(1997), most preferred foods of adults were fruit and vegetables. Urban middle aged home of southeast of Korea(Jang & Kwon 1995) and Korean industrial workers(Kim & Ahn 1993) prefered cooked rice.

The lower of preference food groups were fish(raw or fermented), salted vegetables and soy group. Salted vegetables and soy pastes are Korean traditional basic side dishes. The frequency of salted and fermented vegetable intake were low in housewives because of saltiness and difficulty of preparation(Yoon 1995). Among 58 kinds of fermented vegetable, 31 kinds were not known to a half of housewives studied(Yoon 1995). Because of a low perception of salted vegetables and jangachi to housewives, the opportunity to have them in children was also low. To increase the preference of namul and jangachi, reduced use of salt would be neccssary to prepare leafy vegetables. Also it could be suggested the food preference can be affected by cooking method(Koo & Park 1998). Therefore, newly developed cooking method may change children's preference for foods. Obese male college students consume cholesterol rich food and animal fat more frequently than other body types(Lee & Choi 1994), however in this study, no significant difference in the preference for fried or roasted and grilled foods among different body types of children was found.

Various cuisines of rice could offer familiarity and variety to the diet. Children's favorite rice cake was rice-cake pot stew with red pepper sauce(ttukpokki), and rice raviolli with honey(kulttuk)(Table 8). High school students' consumption and preference of rice cake was also high as 41.6% of the students ate it once a week, and most favorite rice cake was Ingeolmi(Lee 1998). But in the case of elementary school children studied by the same author(Lee 1997), the preference score of rice cake was lower(2.82/5 points) than the result of present study. The preference score of white steamed rice cake was significantly higher in the underweight children than that of the overweight. The result of this study indicated that these elementary school children like rice cake with different preparation.

Table 9 shows the preference of 10 kinds of vegetables among different body types of the children. The subjects of this study did not prefer vegetables and kimchi, except lettuce, while it was reported that college students favored salads, mixed vegetables and sandwiches(Park et al. 1995). Children's high preference score of tofu(4.3) well corresponeded to college students' selection of uncurded tofu stew(Park et al. 1995).

Increases in soft drink preference were observed both in children and college students. Soft drinks contain more calories and much less nutritional value than milk. In the study of milk and beverage preference among college students in the US, the most prefered item was carbonated soft drinks(Kim et al. 1994). The elementary school children of the present study favored carbonated soft drinks and grain powdered(misitgaru) drink scored same. Overweight children

Table 8. The preference scores of rice-cakes and rice soups(juk) according to different body types of the subjects

	Total	Underweight	Normal	Overweight	F-value
Stew of cutted ricecake with mandoo	4.3±1.0[1)]	4.2±1.1	4.4±1.0	4.3±1.2	0.95
Ricecake with red soy-paste(ttukpokki)	4.7±0.7	4.7±0.7	4.7±0.7	4.6±0.7	1.19
Steamed ricecake with red-beans	3.9±1.1	3.8±1.2	4.0±1.1	3.8±1.2	1.38
Beated-ricecake-soypowder-covered(injulmi)	4.1±1.1	4.1±1.2	4.2±1.1	4.1±1.1	0.56
White steamed ricecake	3.8±1.3	4.0±1.1	3.8±1.3	3.6±1.4	3.34*
Rice ravioli steamed with pine leaves	4.1±1.2	4.1±1.1	4.1±1.1	4.0±1.2	0.82
Rice ravioli with honey(kkulttuk)	4.5±0.9	4.4±1.1	4.6±0.8	4.5±1.0	2.85
Beated ricecake square cutting	3.6±1.3	3.6±1.3	3.7±1.2	3.5±1.4	1.43
Rice soup with chicken	3.8±1.3	3.7±1.3	3.9±1.3	3.8±1.4	1.52
White rice soup	3.3±1.5	3.4±1.4	3.3±1.5	3.2±1.4	1.09

* : $p<0.05$
1) : maximun score=5 points

Table 9. The preference scores of vegetables according to different body types of the subjects

	Total	Underweight	Normal	Overweight	F-value
Lettuce	4.3±1.1[1)]	4.3±1.1	4.2±1.2	4.5±0.9	4.71**
Chinese cabbage	4.1±1.2	4.0±1.2	4.0±1.2	4.2±1.1	2.34
Radishes	3.7±1.3	3.7±1.3	3.6±1.3	3.8±1.2	1.48
Crown daisy	3.0±1.4	3.0±1.4	3.0±1.4	3.1±1.4	0.53
Cucumbers	4.0±1.3	4.1±1.3	4.0±1.4	4.0±1.4	1.00
Wild-sesame leaf	3.8±1.4	3.9±1.3	3.7±1.4	3.9±1.4	0.99
Tofu	4.2±1.1	4.3±1.0	4.1±1.2	4.3±1.1	1.61
Onion	3.0±1.5	2.8±1.5	2.9±1.4	3.2±1.4	1.99
Squash	3.0±1.4	2.9±1.4	3.1±1.4	3.0±1.4	0.71
Carrot	3.1±1.5	3.0±1.5	3.2±1.5	3.1±1.6	0.97

** : $p<0.01$
1) : maximun score=5 points

Table 10. The preference scores of beverages and other foods according to different body types of the subjects

	Mean	Underweight	Normal	Overweight	F-value
Cookie & snacks	4.5±0.9[1)]	4.5±1.0	4.5±0.9	4.4±0.9	0.63
Nuts	3.9±1.2	3.9±1.2	3.9±1.2	3.9±1.3	0.07
Grain powdered drink	4.4±1.1	4.2±1.1	4.4±1.1	4.5±1.0	1.36
Jam & honey	4.2±1.2	4.3±1.1	4.2±1.2	4.1±1.2	1.60
Chocholate	4.3±1.2	4.3±1.1	4.3±1.0	4.2±1.2	1.19
Candies	4.2±1.1	4.3±1.0	4.2±1.1	4.1±1.3	1.17
Cabonated soft drinks	4.4±1.1	4.4±1.0	4.4±1.0	4.3±1.2	0.66
Milk	4.3±1.2	4.1±1.4	4.2±1.2	4.5±1.0	5.24**
Cheese	3.8±1.5	3.8±1.4	3.8±1.5	3.8±1.5	0.05
Ice-cream	4.6±0.8	4.7±0.7	4.6±0.9	4.6±0.9	0.25

** : $p<0.01$
1) : maximun score=5 points

favored milk more than carbonated soft drinks in this study. As an important single food, milk contains all the nutrients needed by youngsters. The study conducted in Daegu, middle school students' milk preference score was 4.81, and ice cream was 4.12(Han et al. 1997). We have considerable result for milk preference, especially in overweight children. They preferred milk more than other groups of body types($p<0.01$)(Table 10).

Summary and Conclusion

To characterize the children's dietary behavior and food preference in different body types, this study was carried out with 6th grade elementary school children by using a questionnaire. Higher percentage of overweight subjects had irregular breakfast(20.1%) and meal skipping(10.5% breakfast and 4.2% dinner) compared to the other groups. More percentages of the overweight group(18.9%) skipped meal 'to reduce weight' than that of normal weight group(4.4%). However food preference was not different among body types except white steamed rice cake in the underweight group, milk and lettuce in the overweight group. The trends of increasing carbonated soft drink consumption, the preferences of milk and grain powdered drink(misitgaru) achieved same with carbonated soft drink preference in these children. Consumption of carbonated soft drink could be reduced by a little effort of nutrition education.

The results imply the importance of nutrition education focused on prepubescent children. It is necessary to have breakfast regularly, and we should educate the importance of nutrition and health for children to have well-managed dietary behavior and food preference for a balanced diet.

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