

## Investigation of dietary and nutritional status of grade 6 students in a primary school of downtown Guangzhou

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### Abstract

**Objective:** to investigate the nutritional status of grade 6 students in a primary school in Guangzhou. **Methods:** 236 students in grade 6 of a primary school in Guangzhou were investigated by our questionnaire. **Results:** 1.69% of the students basically take no breakfast. Boys and girls like to eat vegetables, while boys like to take meat, girls like to eat fruit secondly. Up to 46.61% of the primary school students often eat high-fat, high-calorie, low-fiber food and western fast food. 80.08% of the pupils like to eat snacks, 93.64% like to drink drinks, and 43.64% often drink beverages. There is a great influence of the parents on their children's eating behavior. **Conclusion:** the education and health departments should pay more attention to the current eating habits of urban primary school students, pay attention to the quality of breakfast of primary school students, publicizing and encouraging them to drink milk in various ways, guiding parents and primary school students to choose snacks and drinks rationally.

### Keywords

Primary school students; diet ; nutritional status; survey.

### 1. Introduction

A good eating behavior should be established from childhood and adolescence. 236 primary school students in Guangzhou were investigated, in order to provide the basis for the health education and the policy formulation, knowing the nutritional status of the primary school students in Guangzhou and finding out the problems.

### 2. Objects and Methods

#### 2.1 Objects

A questionnaire survey was conducted among all the students of grade 6 students in a primary school whose family culture, education and economy were all above the average level in Guangzhou.

#### 2.2 Methods

The questionnaire was designed by ourselves, discussed by professionals and reviewed by experts. The content includes breakfast taking behavior, snack and beverage taking behavior, dietary structure and other conditions in the past year. The general food which eaten more than 5 times a week stands for regular consumption, and hamburgers eaten for 4 times stands for regular consumption. The school doctor is trained by professional staff, and then the school doctor organized the class teacher to guide the students to fill in.

### 2.3 Data Analysis

SPSS 19.0 software was used to establish database and conduct statistical analysis. The X2 test was used for rate comparison.

## 3. Results

### 3.1 Basic Informatio

a total of 236 students were investigated, including 121 male students and 115 female students, with a male-female ratio of 1.05:1.

### 3.2 Preferences for Different Foods

male students mostly prefer meat 92.56% (112/121), followed by eggs 83.47% (101/121), milk 76.03% (92/121) and fruit 74.38% (90/121). The female students preferred eggs 92.17% (106/115), followed by fruits 89.57% (103/115), milk 85.22% (98/115) and vegetables 82.61% (90/115). The proportion of male students who consume hamburgers is 61.98% (75/121), female students is 73.04% (84/115). The proportion of male students who eat fried chicken legs and other high-fat, high-calorie, low-fiber foods is 66.94% (81/121), and female students is 68.70% (79/115). As for the staple food, 41.95% (99/236) of the students like Chinese rice, 46.61% (110/236) of the students like hamburgers or other western fast food, and 11.02% (26/236) of the students prefer instant noodles. 18.22% (43/236) of the students eat hamburgers more than 4 times a month. And 95 students accompanied by their parents (86.36%), 25 students accompanied by their classmates (22.73%), and 18 students accompanied by their friends (16.36%) with a total of 110 students go to eat hamburgers with whom (multiple choices). Food consumption of grade 6 students is shown in table 1.

Table 1. Types of food often eaten by grade 6 students in a primary school in Guangzhou

Food category	male (121)		female (115)	
	Number of people	Percentage	Number of people	Percentage
Milk	92	76.03	98	85.22
Fish	81	66.94	65	56.52
Eggs	101	83.47	106	92.17
Meat	112	92.56	84	73.04
Vegetables	85	70.25	95	82.61
Fruit	90	74.38	103	89.57
Hamburger	75	61.98	84	73.04
Fried chicken leg	81	66.94	79	68.70

### 3.3 Breakfast Situation

55.08% (130/236) of the students eat breakfast every day, 25.42% (60/236) of the students often eat breakfast, 17.80% (42/236) of the students occasionally eat breakfast, and 6.36% (15/236) of the students hardly eat breakfast. The proportion of students who do not eat breakfast is slightly higher than the survey results of China in 1992 (6.1%) [1]. There were 61, 26, 30 and 4 boys and 69, 34, 12 and 9 girls, respectively, who ate breakfast every day, ate breakfast often, ate breakfast once in a while, and basically did not eat breakfast. 51.58% (114/221) of the students eat breakfast at home, 41.63% (92/221) of the students eat breakfast on the road, and 6.79% (15/221) of the students eat breakfast at school or classroom.

### 3.4 Snack Behavior

80.08% (189/236) of the students like to eat snacks. And the proportion of students who like to take snacks is 77.24% (146/189) of them are boys and 22.75% (43/189) of them are girls. The difference between male and female students is statistically significant ( $X^2=70.65$ ,  $P<0.01$ ). Among the 236 surveyed students, 92 people liked salty snacks, 135 like drinks, 125 like chocolates, 106 like fried and puffed foods, 86 like candies, 76 like gum and 65 like biscuits, accounting for 38.98%, 57.20%, 52.97%, 44.92%, 36.44%, 32.20% and 27.54%, respectively. 50.85% (120/236) of the students

choose snacks according to taste, 41.53% (98/236) of them choose snacks with high nutritional content, and 19.07% (45/236) of them choose snacks according to advertising information. 28.39% (67/236) of the pupils' snacks were bought by their parents, 43.22% (102/236) of the pupils bought them by themselves, and 17.80% (42/236) of the pupils gave by others. 40.25% (95/236) of the students ate snacks when they were hungry, 20.33% (48/236) of them ate snacks whenever they wanted, and 10.59% (25/236) of them ate snacks in the afternoon.

### 3.5 Drinks

93.64% (221/236) of them like drinks, including 113 boys and 108 girls. Of the 236 respondents, 43.64% (103/236) regularly drink beverages. The proportion of frequent beverage drinkers was 56.31% (58/103) in male students and 43.69% (45/103) in female students, with no statistically significant difference ( $X^2=1.86$ ,  $P>0.05$ ). In this survey of 236 students, 85 of them choose cola, accounting for 36.02%; 67 of them choose fruit juice, accounting for 28.39%; 31 of them choose dairy products, accounting for 13.14%; 19 of them choose mineral water, accounting for 8.05%; 17 of them choose coffee, accounting for 7.20%; 17 of them choose tea, accounting for 7.20%.

## 4. Discussion

According to this survey, some students and parents do not pay enough attention to eating breakfast or drinking milk. Drink more drinks and eat more snacks, with low nutritional quality; Eating western fast food, such as fried chicken legs and hamburgers, food with high calorie, high fat and low dietary fiber on a high frequency, which gradually becoming a common eating behavior [1].

The nutritional status of breakfast of children and adolescents not only affects energy and nutrient intake throughout the day, but also has a great impact on learning efficiency [2,3]. It should be informed to the parents and students that breakfast is not a meal to be ignored, and to ensure a good breakfast; a variety of ways can be used to promote and encourage students to drink more milk. The survey found that pupils would go to western restaurants to have a meal when they are happy. Most parents support or approve this way of celebrating to their children, which bound to encourage pupils to choose western fast food and increase the frequency of eating high-fat food. Therefore, parents and primary school students should receive health education to understand that eating food with high fat, high calorie and low dietary fiber is against the principle of dietary balance and will bring harm to children's health[4-6]. Drinking beverage and eating snacks is a kind of enjoyment, but children and teenagers should be given the correct guidance that the nutrition of various drinks is not balanced and comprehensive, and frequent and excessive of eating snacks and drinking drinks will cause other health problems, such as tooth decay, obesity and inappetence[5,6]. Helping them to learn to choose snacks and drinks with relatively balanced and comprehensive nutrition, such as nuts, beans, fruit juice, milk and dairy products, etc., while eating less salted, fried, puffed snacks and cola, so that they can not only enjoy the happiness of snacks and drinks, but also obtain good nutrition[7,8]. The fact that parents plays an important role in the diet of their primary school children (especially junior grade). The poor eating habits of the students are closely relate to the low level of nutrition knowledge of their parents. Therefore, it is significant to improve the nutrition knowledge level of this group(parents) in the health education, helping students obtain good nutrition.

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