

Food Groups consumption and Macro and Micro-Nutrients Intake among Primary School Students in Torosk Village of Sabzevar

Akram kooshki^{1,*}, Kazem HassanPour², Mohsen Hiteh³, Mahmood Rivandi⁴

¹Traditional and Complementary Medicine Research Center, Sabzevar University of Medical Sciences, Sabzevar, Iran

²Asistan professor, Department of pediatric, School of medicine, Sabzevar University of Medical Science, Sabzevar, Iran

³Master science in research, Sabzevar University of Medical Science, Sabzevar, Iran

⁴Master science in Organic Chemistry, Bureau of Education, Sabzevar, Iran

Abstract: Background: Assessment of dietary intakes among different groups and population is important for improving the health status. This study determines food group and nutrients intake among Primary School Students in Torosk Village of Sabzevar. **Materials and Methods:** This cross - sectional study was conducted on elementary students in Torosk village, sampling method was census. A validated semi quantitative food frequency questionnaire was used. Student's diets were analyzed by Nutritionist IV software. Collected data was analyzed by SPSS software and descriptive statistical tests. **Results:** In this study, 78 primary school students in Torosk village were participated that 42 (53.8%) female and 36 (46.2%) were male. Age range 7-12 years, mean age 10.01 ± 1.46 years, mean weight and height were 23.27 ± 4.41 kg and 124.64 ± 8.41 cm, respectively. Calcium, zinc, vitamin D and C intake lower than the Recommended Dietary Allowance(RDA) ($P < 0.05$). Conclusion: This study showed that Students had lower amount of some micronutrients.

[Akram kooshki, Kazem HassanPour, Mohsen Hiteh, Mahmood Rivandi. **Food Groups consumption and Macro and Micro-Nutrients Intake among Primary School Students in Torosk Village of Sabzevar.** *Life Sci J* 2013;10(11s):59-61] (ISSN:1097-8135). <http://www.lifesciencesite.com>. 10

Keywords: Student, food, nutrients, Torosk, Iran

Introduction:

Inadequate food intake and nutrition knowledge deficit is involved in the incidence of malnutrition in children. Children should consume enough food and varied diet to grow and be healthy (1,2). More than 1/6 of diseases in the world is due to malnutrition and in some areas may reach to 1/3. Children are significantly at risk of developing malnutrition with special needs to meet food. Recent studies have shown that malnutrition is affected children's learning and their success in life (3). Hadian's study on zahedianian children was shown that 100% of girls and 77.85% of men are affected with zinc deficiency (4). Anthropometric study of school-aged children 12-6 years of Venezuelans have shown that only 7.18% of them had adequate nutritional status but 7/45% of them were obese children and 7.13% of them had some degree of malnutrition (5). In a survey by Akaberi et al on the growth of rural children less than 2 years of Torosk were observed in 26.7% of children had birth weights below the standard third percentile, while the rate is 3% and in 1 year, this rate was more than 50%. 5-13% of children were birth height less than the third percentile and this rate was more than 15-26% in one and a half years (6). Therefore, this disorder is a serious problem. According to the importance of the

nutritional status of children in the school age, we determined the food group and nutrients intake among Primary School Students in Torosk Village of Sabzevar.

Methods:

This cross - sectional study was conducted on elementary students of Torosk village, sampling method was census. They were in the age range of 7-12 years. Finally, 78 students were enrolled. Written informed consent was obtained from each participant. The study was approved by the Research Council and the Ethical Committee Sabzevar University of Medical sciences. For assessing the dietary intake, a 168-item semi quantitative food frequency questionnaire was used.

We used nutritionist IV software (N Squared Computing, San Bruno, Calif., USA). Validity and reliability of the FFQ was reported previously which showed good results in this regard.16 Food habits were assessed by a separated food habit questionnaire. Anthropometric measurements were done according to the standard method. Descriptive statistics option was used for reporting the mean and standard deviation. Frequency test was used for reporting the prevalence (SPSS Inc., Chicago, and III., USA).

Results:

In this study, 78 primary school students in Torosk village were participated that 42 (53.8%) female and 36 (46.2%) were male. Age range 7-12 years, mean age 10.01 ± 1.46 years, mean weight and height were 23.27 ± 4.41 kg and 124.64 ± 8.41 cm, respectively. The amount of different food group consumption in the present study was shown in Table 1. They had lower amount of dairy intake compared to the guidelines.

Table 2 shows the macro and micro-nutrients intake among the students of Torosk village. Calcium, zinc, vitamin D and C intake were lower than the RDA recommended.

Table1: Food groups consumption of primary school students in Torosk village of Sabzevar in the study

<i>Variable</i>	<i>Mean±SD</i>
Cereals (serving/day)	7.34±3.49
Vegetables (serving/day)	1.97±0.84
Fruits (serving/day)	1.03±1.20
Dairy (serving/day)	0.93±0.7
Meats (serving/day)	3.95±1.93
Fats and Sugars (serving/day)	4.5±3.65

Table2: Daily energy and nutrient intakes of primary school students in Torosk village of Sabzevar in the study

<i>Variable</i>	<i>Mean±SD</i>
Energy (kcal)	1489.8±543.56
Protein (gr)	37.80±17.5
Carbohydrate(gr)	185.08±84.43
Fat (gr)	73.34±36.15
Vitamin A (mcg)	427.48±184.91
Vitamin D(mcg)	1.76±0.85
Vitamin E(mg)	10.22±7.84
Vitamin B1(mg)	0.52±0.43
Vitamin B2(mg)	0.52± 0.39
Vitamin B3(mg)	7.86± 3.67
Vitamin B6(mg)	0.88± 0.35
Vitamin B9(mcg)	212.25± 0.835
Vitamin 12(mcg)	2.16± 0.69
Vitamin C(mg)	15.38± 4.19
Calcium(mg)	655.56± 32.52
Phosphorus(mg)	886.3±7 302.07
Iron (mg)	9.43± 4.37
Zinc(mg)	3.76± 2.67

Discussion:

Our findings indicated that micronutrients such as calcium, zinc, vitamin D and vitamin C was deficient in schoolchildren of Torosk village which is

consistent with the results of Nemati s study (12). Nemati and colleagues conducted a study on 10-14 year old youth in Ardebil and showed that calcium and zinc in children was lower than the recommended values. Another study by Ansari et al were performed on students, showed that students had vitamin B2 (77%), vitamin B6 (47%), vitamin B12(73%), calcium(97%) and zinc(98%) deficiency (13). A study in Thailand showed that students under 15 years were intake 24-53% less than the recommended amounts of vitamins A, B1, B2, C and calcium (14). Valente reported that 4,845 children (2,445 girls and 2,400 boys) 7-9 years old of Portuguese received nutrients such as vitamins A, B1, B2, B3, B6, B12, magnesium, zinc, iodine, phosphorus, selenium and iron was very low and approx 10% of recommended amounts by DRI (9). In conclusion, the key findings of the current report revealed that the amount of vitamins A, D, calcium and zinc intake among students in Torosk village of Sabzevar lower than the recommended amounts by RDA. This population had lower amount of dairy intake compared to the guidelines. These problems are also seen in other parts of the world.

Acknowledgment:

This paper was granted by Sabzevar University of Medical Sciences. We also express our thankfulness from the students who helped to collect and complete the questionnaires.

Conflict of interest: None declared

Corresponding Author:

Akram kooshki
Traditional and Complementary Medicine Research Center, Sabzevar University of Medical Sciences, Sabzevar, Iran
Email: akooshki.nutr@yahoo.com
Tel: 09159701470
Fax: 05714445648

References

1. Alah Hajian K, Sadjadi A, Ali pour A, Habibiyan N. Growth rate of children two years of age in rural areas of Babylon. Journal of Mazandaran University of Medical Sciences 2003;38(61): 22-26
2. Pourabdollah P, Ebrahimi M, Koushavar H. Food intake and growth status of preschool children in Tabriz kindergarten. Journal of Tabriz University of Medical Sciences 2005; 38(61): 22-26
3. Hadian M A, Soleimani Gh R. The assessment of serum zinc in malnourished children under 5 years old. Journal of Yazd

- University of Medical Sciences 2008; 15(2):45-49
4. Darvishi Sh, Saleh Hajir M, Reshadmanesh N, Shahsavari S. Prevalence of malnutrition and factors related to elementary students of Kurdistan. *Journal of Kurdistan University of Medical Sciences* 2010;14(2):78-87
 5. Diaz N , Paez Mc , SolanoL . Nutritional Status by Social Stratification in Venezuelan School Children. *Acta Cient Venez* 2002 ; 53 : 284-289
 6. Akaberi Al. Growth status of children under 2 years old in Torosk village. Sabzevar University of Medical Sciences (project report) 2008.
 7. Ejaz Ms , Latif N . Stunting and micronutrient deficiencies in malnourished children . *J Pak Med Assoc* 2010 ; 60 (7) : 543-7
 8. Zadik Z , Sinai T , Zung A , Golander A , Reifen R . Functional food for acceleration of growth in short children born small for gestational age . *J Pediatr Endocrinol Metab* 2010 ; 23 (5) : 435-441
 9. Valente H , P adez C , M ourao I , Rosado V , Moreiva P . Prevention of nutritional inadequacy among Portuguese children . *Acta Med Port* 2010 ; 23 (3) : 365 – 370
 10. Bhandari N , Bahl R , Taneja S . Effect of micronutrient supplementation on linear growth of children . *Br J Nutr* 2001 , 85 (2) : 131-137
 11. Ghaffarpour M, Kianfar Ah, Houshyar rad A. Household measures, conversion coefficients and the percent of edible food. 1 edition, Tehran: Publication of Agricultural Sciences 2000; pp.1-25
 12. Nemati A , Saqa M, Kherkhah M. Assessment of calcium, zinc and iron intake among Ardabil girls (10-14 years). Abstracts of 8th nutrition congress. Tehran: Iran University of Medical Sciences 2003; pp.576
 13. Ansari N, Eghtesadi Sh, Dastgiri S, Ebrahimi M. The pattern of growth and nutritional status of girls 11-14 years in Ahwaz. Abstracts of 6th nutrition congress. Ahvaz: Ahvaz University of Medical Sciences 2001; pp.56
 14. Banjong O, Menefee A, Sranacharoen Pong K, Chittchang U, Eg-Kantrong P, Boonpradern A, et al. Dietary assessment of refugees living in camps: a case study of Mae La camp, Thailand. *Food Nutr Bull* 2003;24(4):360-7

10/5/2013