

Assessment of Dietary Intake and Physical Activity of School Going Children in District Kangra Himachal Pradesh

Uttara Singh¹, Anamika Kashyap²

¹Assistant Professor, Foods and Nutrition, Govt. Home Science College, Sector 10-D, Chandigarh, India

²Research Scholar, Foods and Nutrition, Govt. Home Science College, Sector 10-D, Chandigarh, India

Abstract: *The present study was undertaken with the objectives of assessment of dietary intake and physical activity of school going children (13-17 years) in District Kangra Himachal Pradesh. Children were selected from three government and three private schools (13-17 years). The method for data collection was a self-designed questionnaire, which covered parameters like demographic profile, anthropometric measurements, dietary information and physical activity of children belonging to government and private school going children. The present study revealed that private school children showed better anthropometric measurements (18.03%). Private school children consumed breakfast, skipped less meals, consumed lunch (55.8%), carried packed lunch, consumed fruit (32.3%) and salad (35.2%) every day and got involved in physical activities (46.7%) in school as compared to government school children (33.7%). The study showed that protein, energy, calcium and iron consumption was more in private school going children than government school children. The study concluded that private school children showed better dietary pattern, anthropometric measurements, more physically activity.*

Keywords: Anthropometry, Demographic Profile, Dietary Intake, Balanced diet and Physical activity

1. Introduction

Nutrition is a determinant of health. A well balanced diet increases the body's resistance to infection, thus warding off a host of infections as well as helping the body fight existing infection. Depending on the nutrient in question, nutritional deficiency can manifest in an array of disorders like protein energy malnutrition, night blindness, iodine deficiency disorders, anemia, stunting, low Body Mass Index and low coronary heart disease, hypertension, non-insulin dependent diabetes mellitus and cancer, among others. Food intake patterns and overweight are associated with different immediate complications and major long-term consequences including cardiovascular diseases, diabetes, high blood pressure, stroke, cancer, dental caries, asthma, and some other psychological disorders like depression (Shepherd *et al* 2006).

Adolescence a period of transition between childhood and adulthood, occupies a crucial position in the life of human beings. This period is an important physiological phase of life characterized by an exceptionally rapid rate of growth and development both physical and psychological. Adolescent growth and development is closely linked to the diet they receive during childhood and adolescence. Adequate nutrition of any individual is determined by two factors. The first is the adequate availability of food in terms of quantity as well as quality which depends on socio-economic status, food practices, cultural traditions and allocation of the food. The second factor is the ability to digest, absorb and utilize the food in the body. Nutritional needs during this period are increased because of the increased growth rate and changes in body composition associated with puberty. The dramatic increase in energy and nutrient requirements coincides with other factors that may affect adolescent's food choices and nutrient intake and

thus nutrition status. There are many body changes which results due to the influence of hormones. Greatest nutrients need for boys is between 12-15 years and for girls is 10-13 years. They attain their adult stature between 18-20 years but bone mass continues to increase upto age of 25 years. With profound growth of adolescence there is increased demands for energy, protein, mineral and vitamins (Srilakshmi 2016).

Physical activity is defined as any bodily movement produced by skeletal muscles that results in energy expenditure. Physical activity includes work related, recreational and leisure time activity (Caspersenet *et al* 1985). Regular physical activity is an essential component of personal and public health programs associated with reduced risk for specific health problems and lower all causes of mortality. Technological advances of modern society have contributed to a sedentary lifestyle that has changed the phenotype. Children today weigh more and have higher body mass index than their peers of just a generation earlier. Lack of participation in physical activity has contributed to a greater prevalence of pediatric obesity, a decrease in fitness and greater risk for diseases. Adolescents who perform regular physical activity consistently have a healthier cardiorespiratory fitness profile and greater functional capacity than their sedentary peers (Blair *et al* 1989). Regular physical activity in children also is associated with the maintenance of good mental health and self-esteem. These outcomes of physical activity are associated with improved psychological and emotional functioning that may be carried out into adulthood (Rosset *et al* 1988).

Among children, physical activity is a highly multidimensional construct, traditionally conceptualized as any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above the

basal level. Thus physical activity is likely to encompass numerous behavior that is planned, structured and repetitive, and undertaken for the purpose of improving or maintaining physical fitness, is only one subset of physical activity. While physical activity is considered as behavior, physical fitness is considered as an attribute. Although fitness includes several attributes such as muscular strength, flexibility, balance agility, power, speed and coordination, it is typically conceptualized as cardio respiratory endurance (Robinson 1982).

Adolescence is a stage when peer group can influence the teenage eating behavior and it is during this period onwards that, an individual may likely to start skipping meals or possibly under-eating or over-eating. Today, adolescents are more independent and have their own food decisions and choices. Many adolescents experience a progressive development and this will gradually augment in frequent appetite. They also need healthy foods to meet their growth demands. Adolescents are prone to eat more meals away from home than their younger siblings. The choice and timing of the meal, will be purely based on their convenience, and this may lead to many wrong decision making in the types of food they prefer (for example, soft drinks, fast-food, processed foods). Maintaining good nutrition throughout a child's teenage years is fundamental for their health and wellbeing. To maintain healthy balance, adolescents, should practice eating regular meals, engage in doing compulsory daily physical activity, and eating a wide variety of foods. Food choices of adolescents have become increasingly unhealthy placing them at increased risk of malnutrition and chronic diseases in the future. Thus, dietary decisions made in adolescence may have long term health implications. Awareness on healthy eating habits will definitely make the adolescents aware about their health and its importance in future living. Teachers and parents can play a major role in bringing a positive and healthy change in the eating pattern of the adolescents (Balan 2016).

2. Methods

The present study was conducted in district Kangra of Himachal Pradesh. A sample of 600 children, comprising of 300 government and 300 private schools were selected. The study covered 3 government and 3 private schools of Kangra. It spanned over a period of approximately two months. SPSS version was used for analysis of data. Further, more statistical analysis included mean, percentages, chi-square test, t-test. The important related information was represented using bar diagram.

3. Results and Discussion

Table 1 revealed that 33.7% government and 46.7% private school children participated in sports in school.

Table 1: Taking Part in Sports in School

Do you take part in sports?	School		Total
	Government	Private	
Yes	202 (33.7)	280 (46.7)	482 (80.3)
No	98 (16.3)	20 (3.3)	118 (19.7)
Total	300 (50.0)	300 (50.0)	600 (100.0)

Figures in parenthesis are percentage

Table 2 revealed that majority of private school children took part in playing outdoor games. 38% government school children and 41.8% private school children played outdoor games

Table 2: Playing Outdoor Games at Home

Do you play any outdoor game?	School		Total
	Government	Private	
Yes	228 (38.0)	251 (41.8)	479 (79.8)
No	72 (12.0)	49 (8.2)	121 (20.2)
Total	300 (50.0)	300 (50.0)	600 (100.0)

Figures in parenthesis are percentage

Table 3 revealed that majority of children spent 30 minutes for physical activity i.e. 23.0% and 20.3% by government and private school children respectively.

Table 3: Time Spent in Playing Outdoor Games

How much time do you spend on physical activities?	School		Total
	Government	Private	
30 minutes	138 (23.0)	122 (20.3)	260 (43.3)
1-2 hours	99 (16.5)	116 (19.3)	215 (35.8)
2-3 hours	63 (10.5)	62 (10.3)	125 (20.8)
Total	300 (50.0)	300 (50.0)	600 (100.0)

Figures in parenthesis are percentage

Table 4 revealed that majority of government school children commute to school by walking which is good for health and adds to physical activity. 41.7% government school children and 22.8% private school children commute by walking only. Private school children used other conveyance also like 16.2% by bus, 6.7% by scooter, 3.7% by car.

Table 4: Conveyance used to Going to School

How do you go to school?	School		Total
	Government	Private	
School bus	30 (5.0)	97 (16.2)	127 (21.2)
Walking	250 (41.7)	137 (22.8)	387 (64.5)
Scooter	8 (1.3)	40 (6.7)	48 (8.0)
Car	3 (0.5)	22 (3.7)	25 (4.2)
Cycling	9 (1.5)	4 (0.7)	13 (2.2)
Total	300 (50.0)	300 (50.0)	600 (100.0)

To calculate the nutrient intake of the respondents, 24 hour recall method was used. The mean values for a day of the nutrients were calculated. Highly significant difference between the two groups in energy, protein, fats, carbohydrates, iron and calcium consumption was observed. The government school children were consuming less energy, protein, calcium, iron and zinc than private school children.

Table 5: Nutritional analysis on the basis of consumption of diet

Nutrients	Government			Private		
	N	Mean	Standard Deviation	N	Mean	Standard Deviation
Protein (gm)	300	52.17	13.44	300	55.82	11.47
Total Fat (gm)	300	68.16	16.76	300	71.45	12.93
Carbohydrate (gm)	300	258.56	44.93	300	238.76	34.49
Energy in Kcal	300	1775.15	341.41	300	1839.3	245.65
Calcium (mg)	300	514.38	95.01	300	575.04	108.78
Iron (mg)	300	18.41	5.2	300	24.41	8.31

The above data represented that the mean intake of calories among subjects (13-17 years). The mean intake by government school children was 1775.15 Kcal and private school children was 1839.32 Kcal. The adolescent growth spurt is sensitive to energy and nutrient deprivation.

Protein provides 4 Kcal/gm. of energy. The above table revealed that the mean intake of protein was 52.17g and 55.82g by government and private school going children respectively.

One gram carbohydrate provides 4 Kcal. The table revealed that the mean consumption of carbohydrates by government school children was 258.56g and by private school children was 238.76g.

Total energy requirements comes from fats is about 25-30% of total energy. The total mean consumption of fat by government school children was 68.16g and private school children consumed 71.45g.

The above tables showed that the mean intake of calcium by government and private school children was 514.38mg and 575.04mg respectively.

Iron is the integral part of many nutrients and enzymes that maintain good health. In human iron is an essential component to transport oxygen along with protein in the form of Haemoglobin. Deficiency of iron limits oxygen delivery to cells, resulting in fatigue, poor work performance and decreased immunity. In above table it was revealed that the mean consumption of iron by government and private school going children was 18.41mg and 24.41 respectively.

4. Conclusion

The present study was carried out with a aim to assess the nutritional knowledge of school going children of district Kangra Himachal Pradesh. The total number of respondent was 600 out of which 300 were from government school and 300 were from private schools. A questionnaire cum interview schedule was used for collecting the relevant information. Simple percentages, standard deviation, t-test and Chi square method were adopted for the analysis of the data. The age group of respondents was 13-17 years (girls and boys).

Children spent 30 minutes for physical activity i.e. 23.0% and 20.3% by government and private school children respectively. Government school children (33.7%) and (46.7%) private school children participated in sports in school. The study revealed that majority of private school

children took part in playing outdoor games. Majority of government school children commute to school by walking which is good for health and adds to physical activity. 41.7% government school children and 22.8% private school children commute by walking only.

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