ABSTRACT

The present study was undertaken to develop a strategy for educating upper income school children, replicable in other schools. This action project was conducted in three phases at Gurukul, a day boarding school in Pune with approximately 200 children at the onset of the study.

Phase-I identified gaps in knowledge of nutrition, attitudes as well as food and activity patterns of children and mothers. Questionnaires on Knowledge Attitude and Practices and Food Frequency were filled by 267 mothers of children. Various nutrition education modules were developed in Phase – II based on the responses in Phase-I and issues / concerns raised by the school food committee.

The modules designed for children were growth-monitoring and age-appropriate nutrition education sessions for children from pre-school to secondary school, nutritional modification and cookery of popular snacks and other foods, menu planning for balanced meals based on food pyramid chart and curriculum based nutrition theory for secondary school children.

The modules designed for parents and teachers to sensitize them about lifestyle factors and their relation to coronary heart diseases; use of Food Pyramid in planning daily diets, development of food habits of young children, impact of TV advertisements. All modules in Phase-II were conducted over four academic years.

Phase-III comprised a post-test questionnaire similar to the pre-test and included questions on nutrition knowledge, food and exercise practices. It was filled by 196 students from standard VI to standard X. The responses were statistically analyzed using Chi square and Logistic Regression Analysis. The analysis included comparison between pre-test and post-test, between standards, over-weight/obese and normal children and of duration of nutrition education.
At baseline, mothers had poor nutrition knowledge and extremely poor exercise habits. Majority of families consumed energy-dense snacks/ sweets at least once a week. Biscuits of different varieties were consumed by 22-50% of the families. Thus cumulative consumption of various energy-dense snacks could induce obesity in children and adults. Also, children had poor knowledge about nutrition. Although 85% children had breakfast at least three to four times a week, 50% children ate biscuits. One-fifth to two-fifths of children ate energy-dense snacks in the evening. Majority did not include salads, fruit or curd for dinner and over 1/3rd ate sweets at dinner. Over 95% children consumed chocolates, ice-creams, soft drinks and ate out frequently. Nearly 2/5th children ate foods like wafers, samosa, pastries and chocolates when hungry. About 56% children ate less or more than usual when angry or unhappy.

In the post-test knowledge about body growth and food pyramid increased substantially. The breakfast frequency further increased to over 90%. More children ate ‘desirable’ evening snacks; although they continued to eat ‘undesirable’ snacks. The ratio of ‘desirable’ snacks to ‘undesirable’ snacks improved substantially post intervention. Consumption of soft drinks declined substantially, but that of chocolate worsened slightly.

Children from VI to VIII standards tended to eat more than two servings of junk / fast foods; however, children from IX and X standard ate reduced amount of these foods. Over 85% children wrote four to five correct responses while planning a balanced meal for lunch thali.

Over a period of four years, all children’s habits of playing outdoor games deteriorated in spite of education inputs. Playing indoor games three to four times a week or more increased. Simultaneously duration of watching television decreased after intervention.

Analysis for effect of years of intervention on knowledge and practices of children showed that increase in knowledge were modest after two years, but substantial after
three to four years of intervention, indicating that longer duration was more effective. Breakfast frequency improved progressively with the years of input. The consumption of types of evening snacks was studied, and the ratio of ‘appropriate’ to ‘inappropriate’ foods improved for three to four years of input. Statistical analysis of good scores and bad scores for consumption of ‘appropriate’ and ‘inappropriate’ snacks respectively showed improvement in high good scores with longer intervention. Logistic regression analysis revealed that years of input had significant, positive effect on eating chocolates and chips. Physical activities of children from higher standards were not influenced by years of intervention.

Majority of children identified themselves as ‘thin’ at the baseline and ‘normal’ during the post intervention. Perception of body image improved in all children especially overweight / obese boys and girls. Knowledge and practices of overweight/obese children improved after intervention, although most of the food and activity practices were less desirable compared to non-overweight/obese children.

These data highlight that number of years of education in the school setting should be long enough; and that inputs need to be multi-dimensional in order that children’s nutrition knowledge as well as food and activity practices improve, for life styles to become healthy.