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# Impact of junk food on health status and physical performance of school going children (12-16 Years)

**[*1] Anmol Lamba, [2] Veena Garg**

[1] Research Scholar, Department of Food and Nutrition, Bhagat Phool Singh Institute of Higher Learning, BPSMV, Sonipat, Haryana, India

[2] Dean, Faculty of Science, Department of Food and Nutrition, Bhagat Phool Singh Institute of Higher Learning, BPSMV, Sonipat, Haryana, India

**Abstract**
Junk food simply means an empty calorie food. An empty calorie food is a high calorie or calorie rich food which lacks in micronutrients such as vitamins, minerals, amino acids and fiber but has a high energy (calories). Unfortunately, today's world has been adapted to a system of consumption of foods which has several adverse effects on health. Junk food may be appealing due to their attractive appearance, taste, convenient, low cost and easy to consume. This changing lifestyle of new generation not only affects the nutritional status but also affect their physical performance. Keeping this view in mind, the present study was designed to assess the nutritional status and physical performance of adolescent boys and girls on the basis of tendency to eat junk food. The study was carried out on 240 school going children between the age group of 12-16 years of Dhampur city. The findings of study reveals that subjects habitual to junk food were more overweight as compared to other categories i.e., less habitual and non-habitual. Result also indicates that boys who were habitual and less habitual of junk food had significantly lower scores in jumping as compared to non-habitual adolescent boys. The girls who were habitual to junk food also had significantly low scores in jumping and significantly take more time in running as compared to less habitual counterparts.

**Keywords:** junk food, lifestyle, health status, physical performance

## Introduction
The famous microbiologist Dr. Michael F. Jacobson coined the phrase "Junk Food" in 1972 to describe unhealthy or non-nutritious food [1]. The terms fast food and junk food are often used interchangeably. Most of the junk foods are fast foods as they are prepared and served fast, but not all fast foods are junk foods, especially when they are prepared with nutritious contents [2].

It seems to have engulfed every age; every race and the newest entrants on stage are children, school going in particular. Children find themselves amidst a complex society that is undergoing breath taking changes. Wafers, chips, colas, pizzas and burgers are suddenly the most attractive food items among children. Children rapidly seem to have stepped into a world of fast foods and vending machines, totally unaware of the havoc they are creating for themselves and the impact on their health. Regularly stuffing of junk food can make children addictive of it which leads to complications like overweight and obesity as well as adversely affects their school performance and extracurricular activities. Good nutrition is of utmost priority in children for a steady growth and development [3].

Physical activity is an essential part of healthy life. Children of all ages love to spend their ample time in playing.[4] Nutrition can have a profound effect on the physical performance of kids as healthy child can be actively participate in sport; whereas child with macro and micronutrient deficiency cannot perform better in sports [5]. A person's diet not only impacts his physical performance, but also reflects his overall energy level [6]. The Present study was undertaken to assess the impact of junk food on health status and physical performance of school going children.

## Methodology
### Selection of Sample
A cross-sectional study was conducted in Dhampur city (Uttar Pradesh). The sample consists of 240 school going children (120 girls and 120 boys), aged between 12-16 years. The study samples were collected from Senior Secondary Schools of Dhampur city. The Selection of sample was done on the basis of Junk- food eating habit.

### Dietary Information
General dietary habits of selected sample was collected using pre tested Junk food questionnaire**.** Students were categorized as Junk Food Habitual (H), Junk Food Less Habitual (LH) and Junk Food Not Habitual (NH) on the basis of questionnaire.

### Anthropometric Measurements
Nutritional status of children was assessed by anthropometric measurements. Anthropometric measurements such as height and weight were made by standard techniques. Height was measured without footwear by using anthropometer to nearest 0.1 cm. Portable weighing machine was used to measure weight of children without shoes and wearing minimum necessary clothes. It was recorded to the nearest 0.5 kg.

**Physical Fitness**

To assess the physical fitness of children, Cooper Motor Fitness Test (1963) was used.

**Statistical Analysis**

The statistical analysis was carried out by using SPSS 17.0 version. T- test was used to make categorical comparisons among habitual, less habitual and non-habitual. The p-value <0.05 was considered as significant.

Body mass index (BMI) was computed using the standard equation: BMI ($kg/m^2$) = weight (kg)/height$^2$ ($m^2$).

## Result and discussion

**Table 1:** Distribution of Boys according to tendency to eat junk food and BMI categories (N=120)

| Categories of BMI | | Tendency to Eat Junk Food | | |
|---|---|---|---|---|
| | Total (120) | Habitual (40) | Less Habitual (40) | Non Habitual (40) |
| Underweight | 55 (46%) | 18 (45%) | 20 (50%) | 17 (42.5%) |
| Normal weight | 51 (42%) | 14 (35%) | 16 (40%) | 21 (52.5%) |
| Overweight | 14 (12%) | 08 (20%) | 04 (10%) | 02 (5%) |

The subjects are categorised according to their body mass index in table 1. It reveals that boys habitual to junk food were more overweight (20%) as compared to other category. Result also shows that prevalence of overweight among less habitual and not habitual were 10% and 5 % respectively.

**Table 2:** Distribution of Girls according to tendency to eat junk food and BMI categories (N=120)

| Categories of BMI | | Tendency to Eat Junk Food | | |
|---|---|---|---|---|
| | Total (120) | Habitual (40) | Less Habitual (40) | Non Habitual (40) |
| Underweight | 54 (45%) | 16 (40%) | 22 (55%) | 16 (40%) |
| Normal weight | 58 (48%) | 18 (45%) | 16 (40%) | 24 (60%) |
| Overweight | 08 (7%) | 06 (15%) | 02 (5%) | 00 (0%) |

Table 2 shows that girls who were habitual to junk food were more overweight (15%) as compared to other categoris i.e., less habitual (5%) and non-habitual (0%). The overall result reflects the effect of junk food consumption on physical fitness of adolescent girls.

**Table 3:** Jumping performance (long jump measured in feet) of boys between 12-16 years of age on the basis of tendency to eat junk food

| Tendency to eat junk food | N | Jumping Performance | | p-value |
|---|---|---|---|---|
| | | Mean (feet) | SD | |
| Habitual | 40 | 10.8 | 1.9 | .0501 |
| Less habitual | 40 | 11.1 | 2.3 | |
| Habitual | 40 | 10.8 | 1.9 | .0499 |
| Non habitual | 40 | 11.4 | 1.6 | |
| Less habitual | 40 | 11.1 | 2.3 | .0499 |
| Non habitual | 40 | 11.4 | 1.6 | |

Table 3 reveals that the adolescent boys who were habituated to junk food have significantly lower scores in jumping (M=10.8) as compared to adolescent boys who were less habitual towards junk food (M=11.1) but the p-value (.0501) is statistically insignificant. It also shows that adolescent boys who were habituated to junk food have significantly lower scores in jumping (M=10.8) as compared to non-habitual adolescent boys (M=11.4). The p-value (.0499) statistically confirms this finding. Entries reported in table 3 also indicates that boys who were less habitual to junk food have significantly lower scores in jumping (M=11.1) as compared to non-habitual adolescent boys (M=11.4). The p- value (.0499) statistically confirms this finding.

**Table 4:** Running performance (distance is 100 metres and time measured in seconds) of boys between 12-16 years of age on the basis of tendency to eat junk food

| Tendency to eat junk food | N | Running Performance | | p-value |
|---|---|---|---|---|
| | | Mean (sec) | SD | |
| Habitual | 40 | 16.9 | 2.3 | .0494 |
| Less habitual | 40 | 16.3 | 1.9 | |
| Habitual | 40 | 16.9 | 2.3 | .0496 |
| Non habitual | 40 | 15.3 | 1.6 | |
| Less habitual | 40 | 16.3 | 1.9 | .0499 |
| Non habitual | 40 | 15.3 | 1.6 | |

Table 4 states that the junk food habitual boys significantly take more time in running 100 metres (M=16.9) as compared to adolescent boys who were less habitual towards junk food (M=16.3) and the p-value (.0494) statistically confirms this finding. It also reveals that adolescent boys who were habituated to junk food have significantly take more time (M=16.9) as compared to non-habitual adolescent boys (M=15.3). The p-value (.0496) statistically confirms this finding. Entries reported in table also shows that subjects who were less habitual to junk food have significantly take more time (M=16.3) as compared to non-habitual adolescent boys (M=15.3). The p- value (.0499) statistically confirms this finding at .05 level of significance.

**Table 5:** Jumping performance (long jump measured in feet) of girls between 12-16 years of age on the basis of tendency to eat junk food

| Tendency to eat junk food | N | Jumping Performance | | p-value |
|---|---|---|---|---|
| | | Mean (feet) | SD | |
| Habitual | 40 | 8.4 | 2.1 | .0486 |
| Less habitual | 40 | 8.8 | 1.7 | |
| Habitual | 40 | 8.4 | 2.1 | .0483 |
| Non habitual | 40 | 10.1 | 1.4 | |
| Less habitual | 40 | 8.4 | 1.7 | .0501 |
| Non habitual | 40 | 10.1 | 1.4 | |

Table 5 indicates that the adolescent girls who were habituated to junk food have significantly lower scores in jumping (M=8.4) as compared to adolescent girls who were less habitual to junk food (M=8.8) and the p-value (.0486) statistically support this finding. It also reveals that adolescent girls who were habituated to junk food have significantly lower scores in jumping (M=8.4) as compared to non-habitual adolescent girls (M=10.1). The p-value (.0483) statistically give weightage to this finding. Result also states that that there is no statistically significant difference was observed in jumping performance of girls belonging to less habitual and non-habitual categories as p value is .0501.

**Table 6:** Running performance (distance is 100 metre and time measured in seconds) of boys between 12-16 years of age on the basis of tendency to eat junk food

| Tendency to eat junk food | N | Running Performance | | p-value |
|---|---|---|---|---|
| | | Mean (sec) | SD | |
| Habitual | 40 | 20.1 | 3.6 | .0498 |
| Less habitual | 40 | 19.4 | 3.1 | |
| Habitual | 40 | 20.1 | 3.6 | .0494 |
| Non habitual | 40 | 17.9 | 1.7 | |
| Less habitual | 40 | 19.4 | 3.1 | .0501 |
| Non habitual | 40 | 17.9 | 1.7 | |

Table 6 reveals that the junk food habitual girls significantly take more time in running 100 metres (M=20.1) as compared to adolescent girls who were less habitual towards junk food (M=19.4) and the p-value (.0498) statistically confirms this finding. It also indicates that adolescent girls who were habituated to junk food have significantly take more time (M=20.1) as compared to non-habitual adolescent girls (M=17.9). The p-value (.0494) statistically supports this finding. Entries reported in table 6 also shows that there is no statistically significant difference was observed in running performance of adolescent girls belonging to less habitual and non-habitual categories (p>.05).

## Conclusion

Junk Food consumption and obesity has been described as a global epidemic not only in developed countries but also developing countries. Excess consumption of junk food affects both the health status and the physical performance of children. The present study revealed that junk food habitual subjects were overweight and had low physical stamina in comparison to their non-habitual counterparts. Good health is the necessity of living a healthy life for everyone which needs to maintain a healthy diet. Parents should be very conscious towards the eating habits of their children and make them aware about the harmful effects of junk food. Schools and colleges must provide nutrition education to students so that they can develop a healthy eating pattern. Healthy eating and fitness of the body is the secret to good health and longevity.

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