JUNK FOOD: IMPACT ON HEALTH

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ABSTRACT

Junk refer to fast food which are easy to make and easy to consume. Michael Jacobson aptly coins the phrase junk food in 1972 as slang for foods of useless or low nutritional value. Junk food so called HFSS (High fat, sugar or salt). Various type of Junk food that available in restaurants is cold-drinks, pizza, burger, and sandwich etc. The number of fast food restaurants and chain is increasing because people around the world like to eat junk food .USA, Canada, Britain, Australia, Japan, Sweden etc. are the countries with most junk food consumption around the world. Junk food is more popular because of experience of great taste, better shelf life and easy transportation. The junk food advertising is also play a great role in junk food's popularity. But it should be avoided, because of lack of energy, high cholesterol and poor concentration. It causes a lot of harmful effect on the body like obesity, diabetes, heart disease and various types of skin cancers. Eliminating the temptation for junk food and developing the awareness for fitness can be helping in avoid the junk food from the healthy diet regimen.

**Key Words: -** junk food, cholesterol, obesity, burger, pizza.

1. INTRODUCTION:

Junk food refers to fast food, which are easy to make and easy to consume. They are low in nutritional value and have only lying fat in it causing ill effect on the healh of consumer. The term 'Junk food' was coined by Michael Jacobson, director of Center for Science in 1972 in the public interest who wanted to raise public attention about the issue of foods with a high caloric value and a low nutritional value. Junk food contains high level of refined sugar, white flour, trans fat, polyunsaturated fat salt and numerous food additive such as monosodium glutamate (MSG) and tartrazine, and lacking in protein, vitamin and fiber. Junk food is popular because of their simplicity of manufacture, consumes, their taste and has a long shelf life which may not require refrigeration.[1] In the united kingdom the food standards agency do not use the term 'junk food 'and describe food 'HFSS' (high fat, sugar or salt). They state that has foods can form part of a balanced diet, but research show that children diet contain too much fat (especially trans fat) salt and suger.[2] Americans eat the most fast food, but the Japanese spend the most on take away (home delivery) according to a research conducted by Euro-monitor International. The high level of per capita consumption demonstrates the importance of fast food in life style in these countries. Burger dominates the US fast food industry as it taking more than half of total fast food expenditure.[3]

1.1 Problems associated with junk food:

1.1.1 High fat content:

Junk foods such as hamburgers, pizza, fried chicken and chips usually loads of saturated fats, too much saturated fat in diet will cause people to put on weight and obese being overweight is a risk to the health of heart and causes other disease.
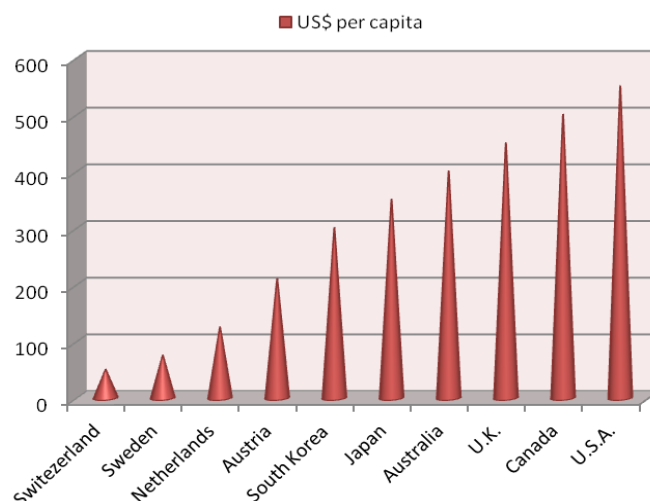
Figure 1: Expenditure on fast food – top ten countries[4,22]

1.1.2 High salt content:

Junk often have too much salt there is a lot of salt already in food such as bread, breakfast cereals and biscuits. So people are getting more salt than they need when they eat junk food too much salt is unhealthy for health.

1.1.3 High sugar content:

Soft drinks, cordials, biscuits, cakes and lollies also have loads of sugar that's what makes them taste too good but too much sugar makes people fat, rots the teeth, is bad for the blood and may cause other disease.[5]

Junk food does have some of good things that the body needs for good health as the body needs some salt, fat and sugar for energy to burn while we play and work however too much fat, salt and sugar is bad for health. People tend to settle their meals by consuming fast food to save time. Researchers have shown that junk food might cause

dyslexia, ADHD (attention deficit hyperactivity disorder) and may be autism.[6, 7]

2. TYPES OF JUNK FOOD[8,28]:

Various types of junk food is available in market out of which the most popular junk food is soft drink, pizza, hamburgers, potato chips, ice-creams, hot dog, pakora, chowmins, French fries, cheese chili, pav bhaji etc. Fast food in north such as hamburgers and french fries supplied by companies like McDonald's, KFC and Pizza Hut are often perceived as junk food, whereas similar meals supplied by more up-market outlets such Pizza Express or Nando's are often having the same or worse nutritional content Some food are considered ethnic or traditional are not generally considered junk food, such as gyro, pakora, gyoza or chicharron, though all of these foods lave little nutritional value and are usually high in fat from being fried in oil. Similarly breakfast cereals are often regarded as healthy but may have high levels of sugar, salt and fat.[2]

3. REASONS OF POPULARITY OF JUNK FOOD:

3.1 The time factor:

Junk food addiction is so high because of its simplicity. They are easy to prepare and are very tasty. Junk foods such as potato wafers and Cheetos® do not even need cooking or heating. Peoples prefer to eat them while watching TV, they save themselves a lot of hassles and time when they are in a hurry eating pizzas and burgers as they are served at their door step hot and ready to eat.[1]

3.2 The taste factor:

If time constraint is one reason that pushes peoples to eating junk food, great taste also, to an extent influences them to opt for junk food. But junk foods get their taste owing to lavish usage of oils, salts and sugar. Global broadcaster BBC World and leading market research firm Synovate conducted a survey that showed Britons are more addicted to junk food than any other nation. Overall the survey showed that across the people have conflicting attitudes and behaviours about junk food. Once they caught in junk food addiction, they find it hard to think about the loss of nutrition due to junk food.[1, 9]

3.3 Junk food advertising:

Foods prepared outside the home and restaurant foods have a great attraction for food buffs. An estimate tells that Frito Lays is selling a billion bags of Cheetos per year. Junk food advertising has a major role in this. There is also concern about the targeting of marketing to children because children are easy and potential target for junk food.[1, 10]

3.4 Shelf life:

Junk food has a long shelf life and may not require refrigeration for most products like chips and wafer.[11]

3.5 Ease of transportation:

The transportation of junk food is easy due to its packaging as compare to the man made food. Ease of transportation and availability increase the popularity of junk food day by day.

3.6 Cost:

The cost is less as compared to healthy food. Less cost is also a big reason of the popularity of junk food. It is easily accessible to all classes of population due to its low and attractive price range.

4. REASONS FOR AVOIDING THE JUNK FOOD[12]:

Here is some junk food facts that help to understand the harmful effects associated with them. Some of them are long term while others are short terms effects. The fat contents have high cholesterol level. High calorie content with sugar can lead to obesity. Cholesterol and salt can increase blood pressure, stroke and heart disease in chain. Excessive salt can impaired the functioning of kidney too.

4.1 Lack of energy:

This is known as short term adverse effect resulting from eating junk food as junk food don't provide the essential nutrients [like vitamins, protein and fibers] even though they can very much sufficing, peoples feel weakened.

4.2 Poor concentration:

This is another result of junk food habit. These are traced to effect in immediate and medium term periods when peoples have a sumptuous junk meal rich in oil they feel drowsy and fail to concentrate. Over sustained periods of junk food eating blood circulation drop due to fat accumulation, lack of vital oxygen, nutrients and protein particularly can stale their brain cells temporarily.

4.3 High cholesterol:

Apart from forming plaques and constricting arteries cholesterol also affects liver where it is metabolized. High cholesterol due to junk food and diet strains liver damaging it finally. This is long term effect.

4.4 Heart diseases:

Junk food diet is a major cause of heart diseases (Myocardial infarction) due to plaque formation in arteries which demands heart to put in extra effort to pump blood on the downstream, on the upstream there is lack of returning blood to heart, this causes two damages to heart – heart fatigues due to continuous extra effort and it suffer in oxygen supply.

4.5 Low nutrition value:

The nutritional value of junk food is about one on a scale of 1 to 10, which is the least. The nutritional value is lost in the process of making the junk food so synthetic vitamins and minerals are added to compensate it, but they are not good compared to natural vitamins and minerals. Natural phytochemicals are not present in junk food which soaks up the free radicals to prevent disease.

4.6 Highly addictive:

It is well known fact that fat and sugar are as addictive as heroin and cocaine, they stimulate the same receptors in the brain that make feel good due to increased dopamine level. Junk foods have a lot of hidden sugar and fat to make it addictive and also enhance the taste.

4.7 High chemical additives:

Junk food have lots of chemical additives which are not useful to body, things are like artificial coloring and preservatives. MSG and tartrazine is in almost all type of junk food and all sorts of medical studies have revealed that MSG causes obesity and of other nasty things. All the techniques used to process the junk food – canning, dehydrating and freezing, virtually destroy the flavor of food so chemicals under the guise of 'natural flavor' have been added to enamel the flavor, while color additives are added to make food fresh. It might make the food look and taste better but it is harmful to our bodies.

4.8 Lack of oxygen supply:

Junk food is rich in fat so accumulation of fat can takes place in bronchioles so oxygen supply tends to reduced in body which can cause some respiratory disorders.

5. GREAT REASON TO COOK FOOD AT HOME[13]:

Homemade food is a better option than junk food because it has several advantages over junk food. These includes higher nutritional value, good quality mental satisfaction etc.

5.1 The cost:

The average cost for a taste meal will range from $4 to $10, depending on the restaurant. By sparing only $4 a pound of brown rice and a pound of beans and a pound of frozen broccoli or other vegetable can be purchased and it is equivalent to approx six meals.

5.2 Lose weight naturally:

By eating home cooked food the pounds of weight can be drop off due to avoiding the chemicals and cutting out the extra fat, sugar and salt which is present in junk food.

5.3 Experience great taste:

The home cooked food is superior in taste comparing to junk food, because there is no adulteration and additional preservatives in that food.

5.4 More energy:

The home cooked food has all the nutritional substance comparing to junk food. It provides more energy than junk food in a balanced way.

5.5 Better health:

Some studies have revealed that the chemicals (MSG, flavor, color additives and preservatives) present in junk food in high amount can cause obesity and cancer, along with neurological complaints. The better food enhances the life span with a greater quality of life.

5.6 Avoid traffic:

The gas money will saved if food is cooked at home, extra food can be made and it can be taken for lunch which can avoid to get out and go anywhere at noon and save from hassle.

5.7 Time saving:

Cooking food at home is less time consuming that to drive to a fast food place. Even restaurant is next to door it will take 10 to 20 minutes to order and receive the junk food. To bring the junk food from restaurant will take total 30 to 40 minutes; while in same amount of time food can be cooked at home without the hassle.

5.8 Satisfaction:

There is a greater feeling of cooking fabulous meal, saving of money, time and improved health after cooking the food at home.

6. HOW TO AVOID JUNK FOOD[14]:

Clever junk food advertising and the lure of convenience in addition to taste get people to junk food addiction. Awareness on junk food facts is lacking dramatically in every corner of the society. Here are some useful tips to avoid junk food.

- Junk food and children strange affinity to each other. Do not let children to get habituated to junk food. Ask them to avoid junk food available in school/college canteen.[32]

- Eliminating the temptation for junk food is one way to avoid it. Keeping good food nearby and having meals right on time may help in this direction. Controlling the temptation for junk food is much easier then controlling alcoholism.

- Controlling children from eating junk food in schools is another step that helps in a long term. Schools administrator along with parents has a responsibility to educate children about junk foods in schools.

Table 1: Alternatives of junk food[14]

Grilled chicken	Instead of	Beef, Hamburg, etc.
Salad	Instead of	Fried appetizers
Vegetables	Instead of	Pasta or potatoes
Orange juice or water	Instead of	Shakes or soda
Vegetable soup	Instead of	Chowder or cream soup
Turkey breast on oatmeal bread	Instead of	Bologna, salami, ham, etc. sub
Low fat salad dressing	Instead of	Regular dressing, mayonnaise, oil, etc.
Oatmeal, Syrian or Wheat bread	Instead of	White bread or sub roll

7. HARMFUL EFFECTS OF JUNK FOOD:

7.1 Obesity:

It is defined as an excess of body fat or body weight that is 20% over the ideal. Obesity is a global issue. It is reaching epidemic proportions in developed nations and now be considered as a chronic disease.[9, 15, 16]

- Obesity is multi factorial disorder of energy balance in which chronic calorie intake is greater than energy output. It is characterized by an excessive body mass index (BMI), which is weight (kg) divided by the square of height (m^2).

- A subject with a BMI of 20-25 is considered as having a healthy body weight, one with a BMI as 25-30 overweight and one with a BMI> 30 as obese. The main treatment of obesity is a suitable diet and increased exercise.

- At present approximately 33% adult in USA and 15-20% middle aged population in Europe are obese. At present only few drugs have to shown to reduce body weight in obese i.e. Orlistat, sibutramine and rimonabent.[16]

7.2 Diabetes mellitus:

It is a chronic metabolic disorder characterized by hyperglycemia, glycosuria, hyperlipemia, negative nitrogen balance and sometimes ketonemia. Diabetes mellitus is of two types, Type I (insulin dependent) and Type II (insulin independent). Over 90% cases are Type II diabetes due to junk food consumption.[17]

7.3 Hypertension:

It occurs due to use of junk food regularly. Junk food consists of salt abundance which raise the blood pressure which can causes hypertension, if hypertension is not effectively treated it results in a greatly increased probability of coronary thrombosis. Primary/essential hypertension is due to obesity.[6]

7.4 Heart diseases:

Junk food diet is a major cause of heart disease, myocardial infarction and severe heart failure is due to plaque formation in arteries. The onset and remedy both take a long time and great determination to win.[18]

7.5 Dental cavities:

Dental cavities formed due to the excess consumption of junk food because food accumulated on teeth spaces and plaque formation occurs which finally results in dental cavities.[6]

7.6 Kidney disease:

Junk food is rich of salt sugar and fat so it causes kidney impairment like polyuria, renal failure and hyperuricaemia.

7.7 Neurological disorders:

Mental disorders i.e. drowsiness, laziness, dyslexia, attention deficient hyper activity disorder [ADHD], loss of balance and lack of concentration occur due to excessive eating of junk food.[6]

7.8 Skin rashes:

It is hypersensitivity disorder occur due to use of the junk food. The junk food consists of a lot of additives and chemicals which cause's skin rashes.

7.9 Cancer:

Obese people have an increased risk of colon, breast, prostate, gallbladder, ovarian, skin cancer and uterine cancer.

7.10 Hypoxia:

It occurs due to accumulation of the fat in the arteries therefore lack of oxygen supply in the body causes hypoxia.

7.11 Asthma:

It is chronic pulmonary obstructive disorder occur due to artificial flavoring and coloring agents which is present abundantly in junk food.

7.12 Behavioural problems[19,20]:

Consumption of junk in early childhood can be results in behavior associated problem like hyperactivity, aggressiveness etc.
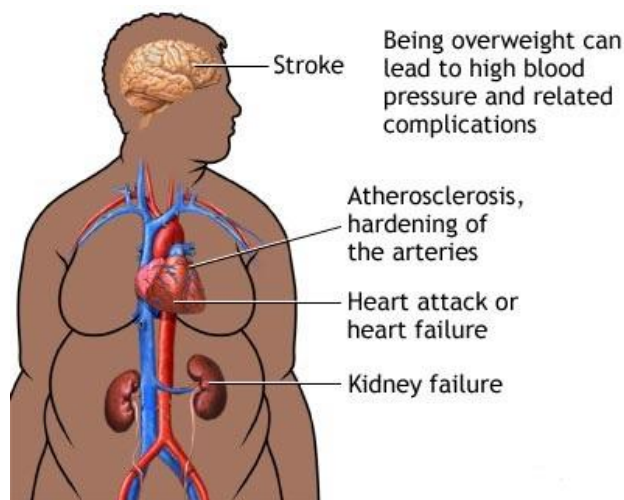

Figure 2: Effect of junk food on various organs[4]

8. JUNK FOOD HARMING MARINE ANIMALS' HEALTH[21,22]:

Biologists have determined that marine animals might be losing weight because of feasting on "junk food" in the oceans, which is a result of human activities like overfishing and changes in the climate. According to a report in *New Scientist,* as predatory fish such as cod have been removed from the sea in large numbers, fish lower down in the food chain, such as sprat, have increased in numbers. But individually, the sprats weigh less, and these leaner fish, according to biologists, are effectively junk food. "They are poor sources of energy for predatory birds and mammals, and as a result these animals are also losing weight," said Henrik Osterblom of the University of Stockholm in Sweden. In the 1990s, Osterblom and colleagues noticed that 20-day-old common guillemot chicks in the Baltic Sea were lighter than they had previously been. Less cod meant more sprats, and since guillemot feed sprat to their young, if quantity was all that mattered, the chicks should have been fattening up. Osterblom's team found, however, that although there were

more sprats, on average individual fish weighed less than before. The researchers worked out that the sprat was competing for the same amount of zooplankton, and each one was getting less of it. As a result, the guillemot chicks were getting more fish, but fewer calories. When, between 2000 and 2004, commercial sprat fishing in the Baltic Sea increased and the wild sprat stock dropped, guillemot chicks became heavier again. The Swedish team realized they had witnessed the junk-food hypothesis in action.

9. JUNK FOOD SOME FACTS:

➢ The junk food industry deliberately targets children as young as 2 in a bid to create brand preference and lifelong loyalty. Advertisers question kids and tap into their play into create ads and product with guaranteed child appeal. Fast food chains use the lure of free toys to get kids to persuade their parents to spend. A desirable toy can double or triple weekly sales of kid's meals. Every child brings along at least one adult too[23].

➢ Artificial flavors in foods aimed at kids can be twice as sweet as the artificial flavours used in adult food. Many children now prefer man made flavors to taste of real food.

➢ U.K. companies spend £300m annually on ads aimed at kids. The average British child watches TV for 2 hour 20 min daily. Children in US have over $500 bn a year to spend. The average American kids spend 25 hours a week to watching TV and sees around 20,000 ads a year for junk food.[24,25]

➢ The metal can costs more than the ingredients, which are primarily water mixed with additives, sugar or sweetener and caffeine a can of cola contains 10 tea spoons of sugar.

➢ Soft drinks are aggressively marked by fast food chains; because they are so profitable, at around 97% profit on the price per cup. The bigger the cup the greater profit.

➢ In the US, average adult consumption of soft drinks is around 500 cans a year. 20% of American under twenties are given soft drinks every day.[25] There are over 300000 different fast food restaurants in US. American eats 3 burgers a week and 81% Americans consume junk food while driving.

➢ Thin fries absorb more fat than thick ones. Fast food meals contain up to 1200 calories in one serving.[27] Most of the fat in chicken is contained in the skin, so remove it. If you really want to lose weight, drink water instead of diet soda.[26]

Table 2: Fat and calorie details of various junk foods[15,25]

Food	Serving	Calories	Fat
Hot dog with bun (regular)	1	300	18
Potato salad	1/2 cup	350	22
Pickle (most kinds)	1	11	0.1
Ham & cheese sandwich	1	450	13
Roast beef sandwich	1	570	38
Salami sandwich	1	450	30
Turkey breast sandwich	1	270	6
Ketchup	1 tbsp	16	0
Mayonnaise	1 tbsp	90	10
FRENCH fries	15	250	12
Mashed potatoes (with butter & milk)	1 cup	225	9
Baked potato (plain)	1 medium	240	0
Grilled chicken sandwich w/ mayo	1	340	13
Chicken nuggets (fried)	6	280	20
Cheeseburger (plain)	1	310	14
1/4 pound cheeseburger (plain)	1	520	30
Taco (beef)	1	190	11
Taco (chicken)	1	170	9
Burrito (beef)	1	500	20
Burrito (chicken)	1	350	12
Burrito (bean)	1	450	14

10. JUNK FOOD – FAT AND CALORIE:

Junk food, fast food and trash food are all definitions of a quick, unhealthy, hunger satisfying substitutes for a good nutritious meal. There are many quick and healthy substitutes that will satisfy even the fussiest of children or adults on the move.

It doesn't take much effort to find healthy alternatives at restaurants and fast food establishments. Some places even have separate sections of their menus dedicated to low fat healthy foods.[28]

Calories and fat content per serving of junk food and breads and pastas is given in table number 2 and 3. These tables are for comparison only. The actual serving size, calories and fat will be different among manufactures and preparation methods.[29]

Table 3: Fat and calorie details of breads and pastas (starches) [15,25]

Food	Serving	Calories	Fat
White bread	1 slice	65	1
English muffin (plain)	1	130	1
Bagel	1	300	2
Oatmeal bread	1 slice	65	1
Syrian bread	1 small	165	1
Cinnamon raisin bread	1 slice	85	1
Graham cracker	1	30	0.5
Saltine cracker	1	12	0.2
Wheat thin cracker	1	18	1
Ritz cracker	1	16	0.8
French toast	1 slice	155	7
Blueberry muffin	1	120	3

Pancake (plain)	1	60	2
Tortilla (corn)	1	65	1
Waffle (plain)	1	205	8
Tortilla chip	1	21	1

11. COMPARISION OF JUNK FOOD:

The majority of the foods served at fast food restaurants contain an insane amount of calories, tons of fat (including trans fat) [30]. It is the kind of food that people should want to avoid eating. The fast food restaurants continue to do just fine because people continue to eat their unhealthy food. But if the peoples are still going to eat this junk food they might as well at least know which is the best of the worst and which is the worst of the worst. For this the nutrition facts of the most popular foods from over 15 popular fast food restaurants have been compared. [31]

Table 4: French Fries (Large)/Hamburgers/Sandwiches Comparison [25, 26]

Fast Food Restaurant	Type	Serving Size (g)	Calories	Total Fat (g)	Saturated Fat (g)	Trans Fat (g)	Carobs (g)	Sodium (mg)
McDonald's	Regular	170	570	30	6	8	70	330
BurgerKing	Regular	160	500	28	6	6	57	820
Wend's	Regular	-	540	26	4	1	69	640
Hardee's	Regular	193	610	28	6	-	78	710
A&W	Regular	156	430	18	4.5	5.5	61	680
White Castle	Regular	244	700	34	6	11	89	570
Sonic	Regular	98	280	11	2	0	42	135
Carl's Jr.	Regular	198	620	29	6	-	80	380
Dairy Queen	Regular	280	730	33	6	5	100	1530
Del Taco	Regular	198	490	32	5	-	47	380
Arby's	Home-style	213	566	37	7	1	82	690
Jack In The Box	Natural Cut	236	640	33	8	10	77	820
A&W	Cheese	170	380	19	5	4	50	1040
Sonic	Cheese	125	380	19	7	0	44	600
McDonald's	QP cheese	279	740	42	19	2.5	40	1190
McDonald's	BNT cheese	220	510	28	11	1.5	38	960
BurgerKing	W cheese	315	760	47	16	1.5	52	1450

QP - Quarter Pounder, BNT - Big N' Tasty, W – Whopper

12. THINK TO KEEP IN MIND: HEALTHY DIET[26, 27,33]:

A healthy diet is one that is arrived at which the intent of improving or maintaining optimal health. A healthy diet may vary widely, and is subject to an individual's genetic makeup, environment, and health. For around 21% of the human population, lack of food and malnutrition are the main impediments to healthy eating. Conversely, people in developed countries have the opposite problem; they are more concerned about obesity.

a. Sufficient calories are required to maintain a person's metabolic and activity needs, but not so excessive as to result in fat storage greater than roughly 30% of body mass. For most people the recommended daily allowance of energy is 2,000 calories, but it depends on age, sex, height, weight, and physical activity.

b. Sufficient quantities of fat, including monounsaturated fat, polyunsaturated fat and saturated fat, with a balance of omega-6 and long-chain omega-3 lipids. The recommended daily allowance of fat is 65-80 grams.

c. Maintenance of a good ratio between carbohydrates and lipids (4:1).

d. Avoid the excessive saturated fat (20grams recommended limit) and trans fat.

e. Sufficient essential amino acids to provide cellular replenishment and transport proteins.

f. Essential micronutrients such as vitamins and certain minerals.

g. Avoiding directly poisonous (e.g. heavy metals) and carcinogenic (e.g. benzene) substances.

h. Avoiding foods contaminated by human pathogens (e.g. E. coli, tapeworm eggs).

i. Most of the fat in chicken is contained in the skin, so remove it.

j. Avoiding chronic high doses of certain foods that are benign or beneficial in small or occasional doses, such as

o foods that may burden or exhaust normal functions (e.g. refined carbohydrates without adequate dietary fiber);

o foods that may interfere at high doses with other body processes (e.g. refined table salt);

o Foods or substances with directly toxic properties at high chronic doses (e.g. ethyl alcohol).

k. Combination of foods eaten and timing of meals so that hunger is kept in check; for example, to meet calorie goal of 2000 calories to avoid gaining weight.

13. CONCLUSION:

Consumption of the junk food invites various health problems. The habit of the consumption of junk food is continuously increasing in young generation especially in children. The main problems with junk food are increasing childhood obesity, which further leads many health complications in children. The attracting advertisements are largely responsible for the mind make up of children to consume junk food. Multinational companies are attracting the new customers (Young people, children) by attractive and aggressive marketing strategies. Parents should take care of the eating habit of their children and protect them from junk food by increasing the awareness about the health problems associated with junk and fast food. The habit of junk food can be avoided by strong will power and awareness of the side effects associated with them. School/ college canteen also ensure to keep healthy food in their menu rather than focusing only on junk food. Children must be educated about the harmful effects of junk food on health, this may be pretty helpful in avoiding of junk food and problems associate with them.

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