

**REVIEW ARTICLE****Junk Foods and their Impact on Health**Ashakiran<sup>1\*</sup> & Deepthi R<sup>2</sup><sup>1</sup>Department of Biochemistry, <sup>2</sup>Department of Community Medicine, Sri Devaraj Urs Medical College, Kolar-563101 (Karnataka), India**Abstract:**

'Eat healthy and live healthy' is one of the essential requirements for long life. Unfortunately, today's world has been adapted to a system of consumption of foods which has several adverse effects on health. Lifestyle changes has compelled us so much that one has so little time to really think what we are eating is right! Globalisation and urbanisation have greatly affected one's eating habits and forced many people to consume fancy and high calorie fast foods, popularly known as 'Junk foods'. Research into the possible health hazards on consumption of such high calorie foods has given an insight to avoid them, but unfortunately measures taken are not as effective as they need to be. Diseases like coronary artery disease and diabetes mellitus have seen a profound rise in developing countries and such unhealthy junk food consumption is one of the notable factors to its contribution. This global problem of consuming junk food on a large scale and its impact on health needs emphasis and health education which can greatly contribute to its limited consumption and switching over to healthy eating habits for the better living. knowledge highlighting about the eating habits, nutritional aspects, quality of unhealthy foods, their health impact and preventive measures should be given to create awareness and render health education for a change towards good

eating practices. Junk food and its impact on health have been reviewed from various resources and have been systematically presented, so as to emphasize its ill effects and measures to be adapted towards healthy living.

**Key Words:**

Diseases, Health, Junk food, Lifestyle

**Introduction:**

Concepts, relationships, lifestyles are metamorphosed to accommodate the new jet age and eating habits too is no exception [1]. Healthy nutritious foods have been replaced by the new food mantra - JUNK FOOD! In the context of world economy, junk food is a global phenomenon [2]. The availability of junk food and snacks at low prices and marketing strategies adapted by manufacturers of such foods has triggered an evolution wherein, consumption of foods that require neither the structure nor the preparation of a formal meal. It seems to have engulfed every age; every race and the newest entrants on stage are children, school going in particular. Hence, a systematic presentation has been made in this review from the articles from various sources highlighting eating habits, nutritional aspects and quality of unhealthy food, their health impact on consumption and preventive measures to be undertaken. Through health education, a change towards good eating practices and adaption of healthy living is



possible.

Obesity accounts for 300,000 deaths in the U.S. alone. Research into junk food and fast food restaurants have found that there is a direct relationship between the number of fast food restaurants located within the local area and obesity rates [3]. According to a survey by the Institute of Food Technologists, 75% of Americans are eating their dinners at home, nearly half those meals are fast foods, delivered, or taken out from restaurants or grocery delis. The way in which we eat, and what we eat, is of vital importance to our state of health. With the global spread of food uniformity, its rapid growth is occurring in the developing world. It has radically changed the way people eat all over the world.

India is no exception to this changing fast-food trend. India's fast-food industry is growing by 40 percent a year. Statistics place India in 10<sup>th</sup> place in fast food per capita spending figures with 2.1% of expenditure of annual total spending. According to the National Sample Survey Organization (NSSO) survey in the year 2005 released by the Delhi government, people living in Delhi spend Rs. 371, on an average, on processed food and beverages per month. They spend Rs. 290 on vegetables and around one-third of it on fruits. The total value of junk food consumed in India in 2003 was about Rs. 41,000 crore; of which, rural areas accounted for a little over Rs. 22,000 crore, as published in an article in news paper by Sudhanshu Ranade in 'Business Line' on July 13<sup>th</sup> 2005. 'Nature' in 2007 states that preventable diseases caused mainly due to smoking, poor diet as junk food consumption and lack of exercise could kill millions in developing world in the next 10

years.

### *What is a Junk Food?*

Junk food simply means an empty calorie food. An empty calorie food is a high calorie or calorie rich food which lacks in micro-nutrients such as vitamins, minerals, or amino acids, and fiber but has high energy (calories). These foods don't contain the nutrients that your body needs to stay healthy. Hence, these foods that has poor nutritional value is considered unhealthy and may be called as junk food. 'Junk food' is an informal term applied to some foods which are perceived to have little or no nutritional value, but which also have ingredients considered unhealthy when eaten regularly, or to those considered unhealthy to consume at all. The term 'junk food' was coined as a slang in the public interest in 1972 by Michael Jacobson, Director of the Center for Science, Washington D.C [4].

What makes these foods to be called as 'Junk' is that it contains high levels of refined sugar, white flour, trans fat and polyunsaturated fat, salt, and numerous food additives such as monosodium glutamate and tartrazine; at the same time, it is lacking in proteins, vitamins, essential minerals, fiber, among other healthy attributes. These foods have little enzyme producing vitamins and minerals and but contain high level of calories in their place. A food that is high in fat, sodium, and/or sugar and provides high calories yet useless in value is generally known as a junk food. On the contrary, junk food is easy to carry, purchase and consume. Generally, a junk food is given a very attractive appearance by adding food additives and colours to enhance flavour, texture and for increasing long



shelf life.

### *Appealing nature of junk food*

Junk food comprises of anything that is quick, tasty, convenient and fashionable. Clever junk food advertising and the lure of convenience in addition to taste drag people to junk food addiction. Following factors generally makes it appealing:

1. Time factor: Junk food addiction is so high because of its simplicity. They are easy to prepare and ready to consume within no time.
2. Taste factor: Great taste also, is another important reason to an extent that influences to opt for junk food. This taste is achieved owing to lavish usage of oils, salts and/or sugar.
3. Attractiveness: Packing of such foods has very attractive appearance by adding food additives and colours in addition to enhancement in flavour.
4. Ad factor: Advertising [5] has a major role in attracting the public, particularly children and adolescents [6] to the junk food selling joints.

### *Recognising junk food*

Junk food, like many other things, can often be known only when you see it. One can spot what might be junk food by looking at a food label [7], including that it has little nutritional value and has:

- > 35% of calories from fat (except for low-fat milk)
- > 10% of calories from saturated fats
- Any trans fat
- > 35% of calories from sugar, unless it is made with 100% fruit and no added sugar

- > 200 calories per servings for snacks
- > 200 mg per serving for sodium (salt) for snacks
- > 480 mg per serving for sodium (salt) for initial meal

Also the ingredients list of the food can be checked to spot many forms of junk food. In general, if one of the first two ingredients is either oil or a form of sugar, then it is likely a junk food. The presence of high fructose corn syrup in the ingredients is also often a tip-off to a food being a junk food.

### *Health impact of junk foods*

Junk food allows people to eat without planning – eat not only when it is pre-set meal time, but also when they have spare time. Ingredients of junk foods give great taste and make them addictive [8]. Fat and sugar in combination are capable of producing a dopamine-driven surge of intense pleasure in people with a propensity for addictive behaviour. On the other side, it must be noted that they are hazardous to health too. High fat content, particularly cholesterol, sugar and salts have their adverse effects on health. Soaring calorie content with sugar can lead to obesity [9].

Dense sugar content can cause dental cavities and type 2 diabetes mellitus [10]. A short-term adverse effect as a result of eating junk foods 'lack of energy' which occurs because junk foods don't provide essential nutrients, even though they can be very much sufficing, due to which one feels weakened. Unfortunately, meals consisting of junk food don't fill up for long. Because they are lacking in fibre, and are made of processed foods, they are rated high



on the glycaemic index, which means they provide a quick rise in blood sugar, but this also falls quickly, and giving rise to hunger.

Cholesterol and salt are known to set off blood pressure, stroke and heart diseases in a chain. Excessive salts can affect functioning of kidneys too. Excess fats and oils along with spices added in these foods act as an irritant to gastric mucosa leading to excess secretion of hydrochloric acid, leading to gastritis. Poor concentration is another result of junk food habit known to affect in immediate and medium term periods. When a sumptuous junk meal rich in oil is taken, there is a feeling of drowsiness and failure to concentrate. The junk food eating over a substantial period of time can drop blood circulation due to fat accumulation. Lack of vital oxygen, nutrients and proteins particularly can stale the grey (brain) cells temporarily. Most of the times these junk foods contain colours, which are often inedible, carcinogenic and harmful to the body. Flavourings and colourings can be allergic causing asthma, rashes and hyperactivity. Animal studies on rats have demonstrated the ill effects of consuming junk foods during pregnancy which affects the health of foetus [11].

### *Metabolic consequences of junk food*

Food dense in calories, when oxidised in the body causes enormous formation of 'Acetyl CoA'. Acetyl CoA in excess is channelized out of mitochondria for its participation in other metabolic pathways and for its effective utilisation. These pathways include *denovo* fatty acid synthesis and biosynthesis of cholesterol, which causes excess fatty acid and cholesterol formation.

The high levels of sugar in junk food which puts metabolism under stress; when refined sugar is taken, the pancreas secretes high amounts of insulin to prevent a dangerous spike in blood sugar levels. Because fast food and junk food don't contain adequate amounts of protein and good carbohydrates, the blood sugar levels suddenly drops after eating, resulting with grumpy, fatigued feeling and a craving for sugar [12]. Another pathway which acetyl CoA is involved in is formation of ketone bodies, which is inactive when energy levels are high, but is active in case when impaired glucose tolerance sets in. Carbonated soft drinks, in addition to towering amount of sugar reportedly contain methylglyoxal (MG), which is strongly associated with human carbonyl stress [13].

Fried and processed food, contains high amounts of trans fats, saturated fats in addition to oxysterols. Oxysterols are a little-known type of cholesterol which may prove to be a lethal compound to heart health as reported by Scientists from China in the National Meeting of the American Chemical Society in August 2009 [14].

A high sodium level has been clearly implicated as the causative factor for high blood pressure. Sodium is known to affect renin-angiotensin system in kidneys, which produces vasoconstrictive effects on arterioles, leading to development of high blood pressure. Also the salts used for the preparation has an impact of their excretion through kidneys, thus having an effect on renal system [15]. High cholesterol from junk food also affects liver on the long run where it is metabolized as it strains liver, damaging it eventually.



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### *Junk foods – Effects on children's health*

Children find themselves amidst a complex society that is undergoing breaths taking changes [16]. 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 their impact on their health.

Good nutrition is of utmost priority in children at the time of steady growth between the ages of 6 – 12 years. In a study done in Beijing, China and published in the year 2008 revealed eating junk food is a popular event among children and adolescents between the age of 8 and 16 [17]. Eating habits in such age group not only has an impact on their growth but also on their concentration, feeling and behaviour. With vast majority of women with school children are working class which has led to leaving behind the traditional foods at home and offering of fast foods by parents to their children. The commonest scenario noticed in most homes is a child who returns from school hangs himself in front of the television, faithfully accompanied by a bowl of wafers, a packet of chips and a can of cola [18, 19]. Such nutritionally weak foods become quickly addictive and can sow the seeds of infirmity and debilitating disease, which ultimately leads to many an incurable disease. Studies reveal:

- Beginning of clogging of arteries as early as at the age of 30
- Risks of prostate and breast cancer linked to their eating habits at puberty
- Setting of hypertension and

osteoporosis at an early age

- Vulnerability to slow growth, tooth decay and obesity [20, 21]

School nutrition survey in Ireland has revealed that 48.6% of lunch taken by children has been categorized as 'junk' [22]. School days are full of educational challenges that require long attention spans and stamina. Poor nutritional habits can undermine these pre-requisites of learning, as well as deplete the strength that children need for making friends, interacting with family, participating in sports and games or simply feeling good about them. Nutritionists agree that the reason for kids with 'Attention Deficit Hyperactivity Disorder' is largely the kind of food children eat [23]. Experts warn that eating too much junk food is one of the factors that have contributed to the current childhood obesity epidemic.

Awareness on junk food facts is lacking dramatically in every corner of the society. 90% of parents agree that junk food advertisements were making it difficult for them to promote healthy eating at home. Messages for healthy eating are getting undermined at every turn by the relentless number of junk food advertisements [24]. Hence every individual parent in the society need to be educated about such foods and their impact on their children's health, who can take care to avoid them intelligently and keeping them out of the reach of their children [25].

### *Avoiding Junk Food*

Awareness on junk food facts is lacking amongst every individual in the community. Eating a healthy diet is a hard work. The only



way to avoid junk food is to encourage eating healthy snacks and more of the following foods, which are usually considered to be a part of a healthy diet:

- foods that are low in fat, saturated fat, and cholesterol
- high-fiber foods, including whole-grain foods, vegetables and fruits
- foods that have only a moderate amount of sugar and salt
- calcium-rich foods, to meet daily calcium requirements
- iron-rich foods, to meet daily requirements for iron

#### **Measures to be taken, especially for children:**

- Since junk food and children have a strange affinity to each other, try and avoid children to get habituated to such foods.
- Controlling children from eating junk foods in schools is another step that helps in a long term. School administration along with parents has a combined responsibility to educate children about avoiding junk foods in school premises.
- Junk food - the name itself is tempting enough. Eliminating the temptation is one way to avoid it. Keeping good food nearby and having meals right on time certainly helps in this direction.
- Developing awareness for fitness will certainly separate junk food and good diet. As quoted in an article "Wanted child lock for junk food" in 'The Telegraph' published on 16<sup>th</sup> February 2009, Calcutta Edition by Varuna Verma "But educating parents about the harmful effects of junk food could also help

children to kick the habit".

The World Consumer Rights Day on March 15 will begin a campaign against the marketing of unhealthy foods to children. Amongst school children, many strategic ideas can be incorporated in schools such as 'Bring fruit at school' [26], which aims to cut down at junk food consumption and its addiction promoting healthy food habits among them. Some of the school-based research and initiatives can open doors for identifying promising strategies to develop 'fruit and vegetable environment' amongst students in school settings [27, 28]. Finally, not all foods are junk; moreover, our body has enough stamina to take care off occasional junk food eating. One need not have to avoid all junk food all the time, if you don't want to do so. The food pyramid even allows for some discretionary calories that we can all use to eat some 'luxury foods', including those with fat or added sugar. The fact that needs to be kept in mind is that most people's allowance of discretionary calories [29] is very small, which ranges from 130 to 290 calories. Often, people overdo it, adding too many calories each day [30].

#### **Conclusion:**

Junk foods have certainly carved up the 'Third World' due to globalisation [31]. It is an integral part of life in the developed and also the developing world, and coming with it is a massive increase in obesity and associated problems. The key to eating these junk foods is moderation, occasional consumption and preferably in small portions. It is not impossible to win war with junk foods against healthy foods [32]. However, one must beware;



entice is so strong that you will be addicted. It must be remembered that the addiction to 'junk' is great for business. It is all in our hands to choose junk food or health.

Avoid Junk, Accept Health!

No Junk, Know Health!

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