

# Effect of Modern (Junk) Food in Dental Caries

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## Abstract

In this modern age, 21st-century people are attracted more towards the outside oily and calories rich junk food than homemade healthy food. Especially this group includes children and youth. Either due to the taste of tongue or due to circumstances like hostel life, they are attracted to these unhealthy fast or junk food. These junk foods are bad for physical health and especially for oral health. Under this topic, we shall discuss the influence of junk food in dental caries which is increasing day by day especially in children and young people due to their modern lifestyle.

**Keywords:** Dental caries, junk food, sugar, carbohydrates, starch, acids microorganisms, fermentation, decaying.

## Introduction

We have to get knowledge about “which are junk food?” and its “consistency” We should have a precise idea about “what is dental caries?” and “how it is initiated?” And “what is the role of junk food in initiating or extending dental caries?”<sup>1</sup>

**Junk food:** Junk food is the unhealthy food that is high in calories consisting of sugar or fat and also have a little amount of dietary fibres, protein, vitamins, minerals or other important nutritional value. Even, so high protein food like meat prepared with saturated fat may be considered as junk food. The ubiquitous supply of junk foods in our food environment is our day to day lifestyle and becomes our day to day food habit. It is seen nowadays that students from high socioeconomic status, they are more junk food consumers. Children from middle eastern culture having a background of high junk food consumers. Junk food consumers are more likely to consume due to some habits like: Eat dinner in

front of the television; Receive sweet rewards; Allows to consume snacks anytime; Have soft drinks available at home; A television in their bedroom or dinner hall.<sup>2</sup>

**Table 1. Junk food types**

Sugar Rich	Spicy and Salty	High-Calorie Food
Candies	Pizzas	Fried chicken
Potato chips	Pavvaji	Fried paneer
Chocolates	Burgers	Oily Breads
Ice-cream	Gupchup	Coffee
Soft drinks	Chats	Diary products
Pastries	Momo	Fruit juice with added sugar
Cookies, cakes	Bada, Samosa	

**Dental Caries:** Dental caries is an irreversible microbial disease of the calcified tissues of the teeth, characterised by de3mineralization of the inorganic part and destruction of the organic substance of the teeth, which often leads to Cavitation. It’s the truth that this junk food affects your oral health. You may ask “HOW? If I brush or floss regularly?” But only brushing or flossing is not enough to prevent these sticky and solid food retention on the tooth surface and its reaction on it. Brushing only maintain the oral hygiene. Pizzas, burgers and French fries these foods are rich in starch and carbohydrate which is the main source for caries. If we don’t brush or floss after eating these junk foods, then it will help these caries causing bacteria to grow and proceed to decay of tooth eventually. These also help in the formation of plaque and tartar which cause

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gum disease. Dry fruits and fruit juice with added sugars due to its natural sugars and artificially added sugar in packed fruit juice help the bacteria to grow freely. And carbohydrate drinks like soda, cold drinks cause harm to their teeth because of two constituents i.e sugar and acids. Due to high acids in carbohydrate drinks cause eroding and wearing down of enamel and make the tooth prone to erosion and decay. Excess salts and sugars are added

to the packed food by the food companies to preserve it for a long time and to reach to its optimum taste. These factors help in long time retention of the debris and acid surface along the tooth surfaces and increase the rate of caries. How caries initiated in tooth due to retention of the excess sugar, carbohydrate, and extra salted food is a question.<sup>4,5</sup>

**Table 2. Consistency of these unhealthy junk foods<sup>3</sup>**

Sugar drinks	Adding sugar is one of the worst ingredients in the modern diet. Sugary drinks increase your total carbohydrate intake. It may cause insulin resistance diabetes type 2, nonalcoholic fatty liver disease, other heart disease or obesity
Pizzas and Burgers	Highly refined dough Heavily processed meat extremely high in calories and high in starch
White bread	These are unhealthy or bad for health if consumed in high amounts because it is highly rich in refined wheat and which is low in fibers and essentials
Fried Packaged food	It contains high calories and also chemicals like acrylamides, acrolein, heterocyclic amines, oxysterols, polycyclic aromatic hydrocarbons(PAHs), AGEs
Pastries, Cookies, and Cakes	If we take it in excess then it is unhealthy. They are made up of refined wheat flour, added fat and refined sugars and also high in unhealthy trans fats and preservatives and no essential nutrients and calories.
French fries and potato chips:	Highly riched in carbohydrates so also riched in calories. These also contain carcinogenic acrylamide
Packed Fruit juice:	We know fruit juice has its natural carbohydrate or sugar but now a day outside packed fruit juice have added sugars and preservatives which is unhealthy.
Agave Nectar	Agave nectar is a sweetener agent that is highly refined and fructose-rich.
Ice-cream:	This dairy product is highly rich in carbohydrates and also in calories, and easy to overeat
Candy bars, Chocolates:	Candy bars are incredibly unhealthy. They are high in refined wheat flour, sugar, and processed fats while very low in essential nutrients. These are also high in carbohydrates.
High calories coffee drinks	The good effects of coffee which help in prevention against serious diseases like type 2 diabetes, Parkinson's disease. But nowadays for mouthwatering we are adding creamers, syrups, sugars and additives, that are frequently highly rich in carbohydrates and unhealthy highly for body like other sugar-sweetened beverages.
Excess salty and spicy foods:	Pavvaji, gupchups, chats, momoetc are highly riched in carbohydrates, salts and chilly

According to “miller’s chemo-parasitic theory” or “acidogenic theory” in the first stage decalcification of enamel and dentin occurs & in second stage softened residue dissolution due to acid and microorganism. For dental caries two factors are responsible first is Oral microorganism & Second is Acids produced from the fermentation of starch or carbohydrate available sticky and solid carbohydrate and starch remaining products on tooth surfaces. Bread, sugar, and another carbohydrate-rich food remain stick to the remaining tooth surfaces

for long periods, they will start fermentation with the help of some microorganisms present in our saliva that produce acids. These acids formed from fermentation helps in the decalcification of enamel and dentin and proceed to decay of tooth.<sup>6</sup>

There are two types of microorganisms, one is acidogenic and another is proteolytic.

In simple language dental caries is the combination of microorganism which produces acids and proteolysis,

acid produced, tooth surface and remaining carbohydrates and starches.

(Bacteria) + (sugar) + (tooth) → (acids) → dental caries

**Functions of carbohydrates:** Both raw sugar and cooked sugar cause dental caries but cooked sugar produces more acids. The carbohydrates present in saliva are not available for microorganisms, because these carbohydrates bound to proteins and other carbohydrates. The presence of carbohydrates and starch on tooth surfaces depends on how many times taken, how much taken which forms taken and in which path it is taken. Monosaccharides and disaccharides are much available on tooth surfaces for acid production. But glucose and sucrose are easily soluble in the stomach tube and intravenously so not available for fermentation.<sup>7</sup>

**Functions of microorganisms:** As we know two types of micro organisms is acidogenic and proteolytic. Those bacteria which are responsible for acid production and dental caries: *S. mutans*, *L. acidophilus*, *Actinomyces*. These bacteria either in isolated or in combined form involved in this fermentation and dental caries process.

**Functions of acids:** Fermentation or enzymatic breakdown of carbohydrate and sugar may produce lactic acid along with butyric acid. There are two types of enzymes “heterofermentative” and “homofermentative”. *Streptococci* and *lactobacilli* which are homo fermentative mostly produce lactic acid in anaerobic conditions. Those which are heterofermentative produce varieties of intermediate acid products. Like pyruvic acid in the presence of lactic acid dehydrogenase produce formic acid and acetyl CoA along with intermediate acid propionic, butyric acid, succinic acid and ethanol. To adhere to these acids on the tooth surfaces, plaque plays a great role. Monosaccharide and disaccharide reduce pH so that it will be suitable for the acid to remain on the tooth surface for a long time. *Actinomyces* in anaerobic condition becomes homofermentative and produces lactic acid but in the presence of CO<sub>2</sub>, it becomes heterofermentative. The amount of acid production depends on the growth of the number of bacteria and the types present.<sup>8-10</sup>

**Steps to take after taking junk food to prevent caries:** We know that junk food is not only bad for our oral health but also our physical health. So consume these unhealthy foods as less as possible. After taking this junk food we should wash our mouth with water. And we should brush and floss your tooth after taking

this junk food so that this food will not remain on tooth surfaces for a long time which will reduce the risk of caries. We can also use mouth wash along these.

## Conclusion

For your relaxation, I want to say that fast food is not harmful when it is taken under control. The problem happens, when it is taken in a large amount and frequency. The result of fast food taken and its complications for oral health is right in front of you.

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