



Mouth Watering Foods & Snacks: How Safe are these for us

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Received Date: December 12, 2024; **Published Date:** December 24, 2024

Keywords

Safety; Maintaining Healthy Foods; Proper Digestion

Abbreviations

MSG: Mono Sodium Glutamate; FSSAI: Food safety and Standards Authority of India; GI: Glycaemic Index; HPLC: High-Performance Liquid Chromatography; HPTLC: High-Performance Thin Layer Chromatography.

Opinion

In addition to our primary meals and breakfast in our daily life we also need healthy “Intermediate Foods” during the day for maintaining a healthy and disease free life. Intermediate foods are those which we usually take in between breakfast and lunch or in the evening before dinner. Balanced and nutritious intermediate foods helps us to act as “Energy Booster” during our working day especially when we become busy in our office work or handling household works in our daily life. The intermediate foods also help us to avoid overeating in lunch and dinners and thereby our digestive system gets time for proper digestion. But unfortunately, nowadays instead of concentrating in nutritious and healthy intermediate foods, we often prefer mouth-watering and lucrative intermediate foods in our break time and in the evening which are commonly known as “Fast Foods”. The most preferred and attractive fast foods we like are “Momo’s, Samosa, Chaumin and Rolls”.

In this article, I want focus few important aspects of the fast foods which will indicate the harmful effects in our life if they

are consumed regularly and why we should avoid taking these foods.

Momo

Momo’s are most favourite and delicious fast food which we all prefer most. But reality is that momo’s are indeed a silent killer. The only time when momo’s are good for your health is when you’re preparing it at home and under hygienic conditions and don’t add other flavouring agents. Otherwise, momo’s from the roadside vendors and cuisines contain “Azinamoto” chemically known as “Mono Sodium Glutamate” (MSG) (Figure 1) which makes momo’s very “Tasty”. It is used to enhance the flavour of the momo’s but it is very harmful for our health if we eat almost regularly. Momo’s contain only the harbinger of some serious infections and unwanted weight gain.

According to “Directorate of Prevention of Food Adulteration, Government of National Capital Territory New Delhi and Food safety and Standards authority of India’ (FSSAI) intake of only 14 milligram is not harmful if taken once or twice in a week. It’s because main health effects of MSG are high cholesterol, high blood pressure, high blood sugar, excessive body fat, sterility in females and it may also cause high blood pressure, water retention during pregnancy, migraine headaches, abnormal heart beats, chest pain, cardiac muscle arrest, numbness, tingling or burning. These symptoms are known as ‘Chinese Restaurant Syndrome’. Momo’s are prepared using ‘bleached’ maida which contains benzoyl peroxide and traces of alloxans, which imparts the soft texture to the flour. These chemicals cause a lot of harm to the pancreas, hampering the insulin-production capability of the organ.

The other and important factor is, we cannot be 100% sure about the hygiene with which momo's are prepared by the vendors and in cuisines. Mostly the vegetables and chicken used for making momo's are stale and not washed properly. Most of the chicken products at unhygienic and often found tested positive for *E. Coli* bacteria.

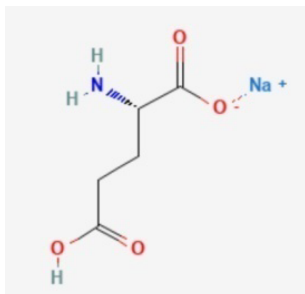


Figure 1: Structure of Azinamot (chemically known as (Mono Sodium Glutamate))

Eating momo's once in a while doesn't impact health to that extent. But if your momo's consumption exceeds thrice a week, then you must go through the adverse impacts you're putting on your health. Momo's are stuffed with cabbage which if not cooked properly can have spores of tapeworm which can reach the brain and lodge there and grow eventually, causing life-threatening condition. All the street foods, not particularly momo's, are harmful for health. If you're a lover of momo's, then better prepare them at home without using MSG (Figure 2).



Figure 2: Momo's.

Samosa

Samosa's are often deep-fried in unhealthy oil, which can lead to high cholesterol, heart disease, and diabetes. The oil used for frying is often reused multiple times, which can release harmful toxins (Figure 3).

Samosa's are the staple evening snack whenever guests have to visit us or when we have to take a quick filling break from work in spite of knowing samosa can be one of the key

reasons for many health complications in our life. Samosa's are packed with refined flour. The layer with which samosa's are made of contains refined flour and refined flour has no health benefits whatsoever. In fact, consumption of excess refined flour can lead to metabolic issues, blood sugar level issues, weight gain problems, heart problems etc.

Samosas are re-fried several times just to serve them hot and appetizing for the consumer. When oil is deeply fried, it leads to the generation of trans fats containing "Free radicals" which are cancerous in nature.



Figure 3: Samosa's.

Chaumein

We enjoy eating chaumeins a lot during a short span of break time. Doctors have warned citizens against eating Chaumein, even though it's a popular fast food. Doctors say the vegetables used in Chaumein, especially cabbage, leads to cyst in humans. This happens when uncleaned vegetables are used in the Chaumein. It also affects the brain leading to fits (epilepsy). Chaumein typically contains processed white noodles made from refined flour, also known as maida, which have a high glycemic index (GI). Consuming large amounts of refined carbohydrates such as maida can cause rapid spikes in blood sugar levels, leading to hyperglycemia. Ajinomoto (MSG) is also used in plenty in chaumeins preparation to make it tastier. Research study suggests regular intake of "Chaumeins" may develop weakness and fragility in bones.



Figure 4: Chaumein.

Egg & Spring Rolls

Egg rolls are an appetizer commonly available at street food corners and restaurants. What makes these deep golden-yellow, crunchy rolls a favorite appetizer among food lovers is their delicious taste, appealing texture and comfort-food status. Egg rolls may resemble spring rolls, but they are two different foods. A spring roll is a combination of variety of vegetables masked with fried oils. Spring rolls can be baked, fried, or deep-fried, while egg rolls are generally deep-fried. Additionally, the fillings differ. The egg roll wrapper, made from wheat flour, water, and egg, is thicker than the rice-based wrapper used in spring rolls. Including an egg in the wrapper also gives the egg roll its distinctive bumpy appearance when deep-fried. One egg roll approximately contains 417 mg of sodium. Due to large amounts of sodium are present in rolls these foods are harmful for the persons having hypertension. Therefore frequent intake of rolls may increase your risk of developing high blood pressure. Another reason egg rolls may not be considered nutrient-dense foods is their fat content. Eating too much saturated fat may be associated with an increased risk of developing coronary heart disease, diabetes, and other chronic health conditions. Nutritionally speaking, an egg roll could be considered a less healthy option. It is a salty, fried food, with oil absorbed into the wrapper and filling during frying. The oil absorbed can increase the calories and fat consumed. While they may not be the healthiest option due to their high fat and calorie content, enjoying them in moderation can still be a part of a balanced diet.

Most the seasonal vegetables used for veg/spring rolls are not properly cleaned and used to keep in unhygienic conditions till the roll is prepared. They are stuffed with repeatedly used oils which very harmful for our health (Figure 5).



Figure 5: Egg & Spring Rolls.

Detection of Presence and Percentage of MSG (Azinamoto) in Fast Foods

MSG can be detected in food using analytical methods like high-performance liquid chromatography (HPLC), high-performance thin layer chromatography (HPTLC) and potentiometric titration. High-performance thin layer

chromatography (HPTLC) is a fast and specific method that uses a mixture of methanol, chloroform, and formic acid as a mobile phase. Potentiometric titration method is a chemical analysis method for analyzing MSG and its percentage presence in the fast foods. Most packaged foods must declare if they contain MSG in the ingredient list on the label. MSG may be listed as “Flavor enhancer (MSG)”. FSSAI has fixed the maximum permissible limits of MSG usage in food items which is 14mg. In case any manufacturer fails to abide by these guidelines, they will come under the radar of these food authorities. In my research work, I have randomly collected specimens of momo, samosa, chaumeins and rolls from various places of Sikkim and Siliguri and undertook experiments using the standards protocols and instrumentation techniques as mentioned. Qualitative tests clearly showed the presence of MSG (Azinamoto) in Momo’s, Chaumein and Rolls but it is found absent in Samosa’s. Found positive tests for ester and amino functional groups clearly as well as IR absorption bands of the methylene carbons of glutamate ester. IR spectrum also showed clear presence of ester functionality. Quantative tests (titration) as mentioned above shows the fast foods (momo, chaumeins and rolls exceeds 14mg usage limitations of MSG (mono sodium glutamate) and violates FSSAI and Directorate of Food Preservation & Adulteration norms.

So What Intermediate Foods are Advisable for us which we May Take Regularly?

Preferably home-made snacks are highly advisable. In our busy daily life if it is not possible to prepare home-made snacks then the ideal, nutritious and healthy snacks in mid-afternoon, is handful of dry fruits rather than processed snacks that can lead to weight gain or inflammation. Also eating our mid-day snack about an hour before dinner can help relieve hunger until dinner is ready. Eating dry fruits like cashews and pistachios in the evening can aid in relaxation, improve sleep quality and reduce stress levels. So rather than worrying about only eating fruit first thing in the morning or only between meals we can enjoy both fruit salads and dry fruits as intermediate foods to maintain healthy lifestyle and keep us fit always. We can have peace and confidence knowing that whether it’s snack time or mealtime if we are picking up a fruit, we are making a healthy choice (Figure 6).



Figure 6: Fruits.

Some Nutritious Ready-To-Eat Snacks at Convenience Stores/ Restaurants

Lower fat yogurt or string cheese, Roasted unsalted nuts and seeds, fresh canned or dried fruit, Hard-boiled eggs, plain popcorn, Delicious fruit salads (variety depends based on season). Varieties of fruit are a storehouse of nutrients such as minerals, vitamins, fibres and so on. They are the best way

to keep our body active and fulfil the maximum nutritional needs of the body. Every fruit has different properties which fulfil a particular need of the body. It is important to include different fruit in our diet throughout the day. Every season brings with it new fruits such as winters are for apple while summers are full of mangoes.