

## Observational study on ill effects of consumption of package food in children of age 2 to 16 years.

Muley Mrudula Pramod\*<sup>1</sup>, Nawkar Madhumati<sup>2</sup>, Nawkar Shailesh<sup>3</sup>

1. PG Scholar
2. Associate Professor and HOD of Sanskrit Samhita Siddhanta Department, [madhumati.nawkar@gmail.com](mailto:madhumati.nawkar@gmail.com) Mob.no. : 9657355366
3. Associate Professor and HOD of Rasashatra and Bhaishaj Department, [shailmadhupa@gmail.com](mailto:shailmadhupa@gmail.com) Mob.No: 9011928998

R.T. Ayurved Mahavidyalaya, Akola, Maharashtra, India

\*Corresponding author: [mrudulmuley@gmail.com](mailto:mrudulmuley@gmail.com); Mob no: 9766025004

### Abstract

Consumption of package food contributes big part in in today's instant era. It may taste delicious and doesn't require time to cook but has hazardous effects. As children are in developing stage every meal, food will count on their health. Package food is somewhat children gets attracted and forms habit of it, but unaware of its ill effects. Ayurveda has been promoting importance of *hita aahar* and *aahar vidhivisheshatayani* (way to eat it) since ages. In this study we have observed the ill effects of consumption of package food in children 2 to 16 years. This study carried out with some questionnaire and criteria. The study shows that these children were affected by various diseases like *twakrag*, *krimirog*, *malabaddhata*, *staulya*, *karshya*, *dantashool*. Therefore, the awareness about ill effects of package food and regular consumption of *hita aahar* must be promoted to build strong and healthy child.

### Keywords:

Package food, *HitaAahar*, *Aahar Vidhi Visheshatayn*, Ill effects

### Introduction

*Aahara* plays important role for healthy life, especially in developing age i.e. children. Children are considered as tomorrow nations bright future. So they must be physically and mentally strong. One's health is totally depend upon what he prefers to eat. Children usually eats what their parents feed them or which they find most attractive, taste delicious. Package food is extremely attractive to most of the children because of its vibrant packaging, delicious taste, comparatively lower prizes and easy availability. (as it doesn't need any cooking as well as preparations.) Here package food can be defined as any food offered for retail sale in state, other than raw food and food served, sold or provide ready to eat in any bake sale, restaurant or cafeteria<sup>1</sup>. e.g. Kurkure, potato chips, baked sticks, namkeen, baked fruit cake etc.

In children healthy and nutritional food establishes the foundation of healthy strong disease-free body. Ayurveda always believes in *Suprajajanan* means not only giving birth to healthy individual but also to maintain this further. But in today's Instant era, where everything is in a minute's reach, includes package food. Children and some parents are unaware of its negative impacts on body. Regular consumption of these packets leads to long term effects on health such as, Skin disease, Obesity, Constipation, etc.

As considering this the burning problem related to children's health, this study suggests the strong need to understand the ill effects of package food in developing age i.e. 2 to 16years old children and ill effects on health. They must be couraging for healthy, nutritious and balanced diet.

Present study is conducted on children from age 2 to 16-year-old, reason behind choosing this particular

age is as from 2 years children starts their *annadawastha* (intake of solid food as wholesome food) and upto 16 years as in *Ayurveda* it considered *Balyawastha* i.e. developing stage. The population for study is patients from *Kaumarbhrutya* Department's O.P.D. of R.T. Ayurved college and Hospital, Akola. The prior consent for participation for survey study has been taken from their parents. The hospital's OPD have all the heterogeneity in population, which might provide relevant results for this study.

### OBJECTIVES

- To observe ill effects of package food in children of age 2 to 16 years.
- To study the contents (preservatives and additives) which may lead to health hazards by over consumption.

### MATERIAL AND METHODS

This is cross sectional study carried out with the following list of questionnaires with patients having following criteria's

**Table 1. Questionnaire: -**

1	Do you eat package food?	Yes	No	Sometimes		
2	How many packets you eat weekly?	2-3	4-5	6-7	More than 7	
3	When do you eat these packets?	Breakfast	Before meal (Lunch/Dinner)	After meal (Lunch/Dinner)	Anytime	
4	Which package food do you prefer?	Kurkure	Potato chips	Baked sticks	Namkeen	Baked fruit cake
5	Where do you eat?	At shop	On road	In the house	Garden	Playground
7	Since how	6 months	1 year	2 year	3 year	4 year

	many days you are eating package food					
8	Which ill effects do you experienced ?					
9	Do you think it is unhealthy?	Yes	No	Maybe		
10	Why do you prefer package food?	cost effective	Taste	Ready to eat	Effortless	

#### Criteria's: -

**Inclusive criteria-** Children from age 2 to 16years old

- Both male and female
- Who eats package food more than 2 times a week.
- Who eats package food more than 6 months.

#### Exclusive criteria

- Children who have hereditary skin diseases e.g. *Vitiligo*
- Children who are in high risk e.g. Juvenile diabetes, any anomalies.

#### RESEARCH QUESTION

Is over consumption of package food causes ill effects on children from age 2 to 16 years?

#### OBSEVATIONS

In the present study we have selected 40 patients who fulfills the inclusive criteria and following observations are seen which are arrange in tables.

**TABLE 2. Consumption of package food in one week**

Number of package food consume in one week	Male	Female	Total
2-3 packets	6	3	9
4-5 packets	2	5	7
6-7 packets	8	6	14
More than 7 packets	4	6	10

The above table showed that the amount of consumption of package food is gets so high in now a day in children. Here table shows that number of 6 to 7 packets in one week are high in rate while more than 7 packets in one week comes after that.

**TABLE 3. Observed Diseases**

Observed diseases	Male	Female	Total	Percentage
1. <i>Twakarog</i> (Skin disease)	17	20	37	92.5%
2. <i>Krumirog</i> (worm infestation)	18	07	25	62.5%
3. <i>Malabaddhata</i> (Constipation)	04	04	08	20%
4. <i>Staulya</i> (Obesity)	02	00	02	0.5%
5. <i>Karshya</i> (Underweight)	00	01	01	02.5%
6. <i>Dantarog</i> (Denatl diseases)	06	03	09	22.5%

In above table we have observed disease which are mentioned in table. *Twakarog* have highest percentage (92.5%) while *krumi rog*(62.5%) comes after it. *Dantarog*have 22.5% and then *sthoulya* have 5% and *karshya* has 2.5% from all the patients. Which concludes skin diseases and worm infestation has more impact on children having over consumption of package food.

**TABLE 4. Details of contents inpackage food per 100 gm**

Type	ENERGY (kcal)	PROTEIN (gm)	CARBOHYDRATE (gm)	FATS (gm)	SODIUM (gm)	SUGAR (gm)
1. Ricefried sticks (Kurkure)	558	6.4	55.2	34.6	892	1.0
2. Potato chips	547	8.9	47.6	35.7	942	-
3. Namkeen	562	8.68	46.10	38.12	615	-
4. Baked sticks	470	6.8	70	18	900	-
5. Fruit cakes	405	5	58	17	-	26.5

**Table 5. Daily requirement of nutrients for age 2 to 16 years old**

Sr.no	Nutrient	Age	Required Value
1	Calories <sup>2</sup>	2-8year 9-16 year	1000-1600 kcal 1800-2800 kcal
2	Proteins <sup>3</sup>	2-8 year 9-16 year	13-19 gm 20-52 gm
3	Fats <sup>4</sup>	2-8 year 9-16 year	1000-1200 gm 1600-1800gm
4	Sodium <sup>5</sup>	2-8 year 9-16 year	370-1000 mg 1200-1500 mg
5	Sugar <sup>6</sup>	2-8 year 9-16 year	Less than 25 gm

As we can see in above table the daily requirement of nutrients like calories should be 1000 to 1600 kcal in 2 to 8 yr old children and 1800 to 2800 kcal in 9 to 16 years old children but if we see the printed value on these package food its between 500 to 600 kcal in one packet so if children is eating more than 2 packets then the daily requirement of calories is fulfilled by just 2 packets, and same is

applied for other nutrients. So, after eating more than 2 packets children get feeling of false sensation of full appetite happens and children eats more food in whole day other than these 2 packets and so many calories and nutrients overburden the *agni* and hampers it, which further led to *mandagni*. Also, the required nutrients like vitamins, minerals do not get from these package foods.

**TABLE 6. Preservatives and its ill effects**

Types	Names of Preservatives	Ill effects
1.Kurkure, Potato chips	1)E631 <sup>7</sup> (disodium Inosinate), 2)E330 <sup>8</sup> (Citric acid)	1)Hyperactivity, asthma 2) Erosion of tooth enamel
2.Namkeens (Bhujia, Farsanmixture)	E330 <sup>8</sup> (Citric acid)	Erosion of tooth enamel
3. Baked Sticks (too yum, Bingo mad angles)	1)INS 415 <sup>9</sup> (Xanthum gum) 2)INS 319 <sup>10</sup> (tertiary butylhydroquinone) 3)INS 296 <sup>11</sup> (Malic acid) 4) INS 334 <sup>12</sup> (L-tartaric acid) 5)INS 551 <sup>13</sup> (Agent silica) 6) INS 631 <sup>14</sup> (Disodiuminosinate) 7)INS 627 <sup>15</sup> (Disodiumgluconate)	1)Digestive issue, increases frequency of stool 2) Dermatitis, nausea, vomiting, cancer 3)Diarrhea,headache, nausea 4) Stomach pain, diarrhea, nausea, water retention, vomiting. 5)Silicosis, lungcancer, chronic kidney failure, obstructive pulmonary disease, TB 6) Hyperactivity, Asthma 7)severe headaches,nausea
4. Baked Fruit Cake	1)Humectant 420 <sup>15</sup> (Sorbitol) 2) Humectant 422 <sup>16</sup> (Glycerol) 3)Emulsifiers 472 e <sup>17</sup> (DiacetyiTartaricacid) 4) Emulsifier 466 <sup>18</sup> (Sodium carboxymethylcellulose) 5) Emulsifier 435 <sup>19</sup> (Polysorbate) 6) Stabilizer 412 <sup>20</sup> (Guar gum) 7) Stabilizer 415 <sup>21</sup> (Xanthumgum) 8) Preservative 202 <sup>22</sup> (Potassium sorbet) 9) Preservative 282 <sup>23</sup> (Calcium propionate)	1)Unintentional weight loss, excessive burping, headache, cramps, gas, bloating, diarrhea. 2)Thirst, headache, nausea. 3)damage to in intestinal barrier,inflammation. 4) cancer,digestiveproblems,gas formation. 5)intestinal disorder,eczema,cancer. 6) Gas production, diarrhea, loose stools 7) Intestinal gas, bloating. 8)Skin or scalp irritatin, eyeirritation, allergic reaction. 9) Migraine,rashes,tiredness,gastro intestinal upsets,depration.

So as mentioned in above Table no 6, are the hazardous effects of preservatives and additives which usually found in package food.

### DISCUSSION

*Ayurveda* always believes in Prevention is better than cure, regarding to this it has mentioned three pillars for healthy life and *aahar* is the first and important of it. *Aahar* if consumed in proper way leads to healthy, disease free body but misleads when taken in inappropriate ways to some serious pathological conditions. In *Charak Samhita* it is stated that how one should eat their food in right way-

उष्णं, स्निग्धं, मात्रावत्, जीर्णवीर्याविरुद्धम्,  
इष्टदेशे, इष्टसर्वोपकरणं, नातिद्रुतं,  
नातिविलम्बितम्, अजल्पन्, अहसन्,  
तन्मनाभुञ्जीत,

आत्मानमभिसमीक्ष्यसम्यक्॥ cha.vi.1/24<sup>24</sup>

But considering this for package food, it violates all the terms mentioned. as stated in above verse the food must be eaten when serves hot, with proper *snigdha* but comparing with package food, it is not hot and either it very dry or too much oil in it. The term *matravatjeerna* is not fulfilled because one or two packets gives false satisfaction of appetite. Many times, it is consumed after eating food and *jeerneashniyat* or *matraashniyat* is not followed here, which is *adhyashan* leads to straight way to *agnimandya*. As *mandaagnistat* as reason behind all the diseases<sup>25</sup>. These foods have *guna* like *Guru*, *Atiruksha*, *Sheeta*, *Shushka*, leads to *aam* which further leads to *agnimandya* which happens to

*srotorodhand* further it brings list of diseases like *Sthoulya*, *Kasrshya*, various types of *Twakrog*, *Krumi*, *malabaddhata*.

In this package they try that food items must be tasty and delicious, they add so many food colors, additives, preservatives, artificial flavor enhancing agents. No doubt these all makes the food very attractive and delicious but at the same time this much amount of chemicals make it prone to number of diseases e.g. INS 319 causes dermatitis, nausea, vomiting, INS 415 causes digestive issues, increases frequency of stools etc. as mentioned details in table no 5. Very few works have been done on how these additives, interact with each other so it might be possible it may intuited so oozing of *srotas* or *srotorodh* to initiate these kinds of different diseases. Suggestion of detail work on this topic to be done may helpful in future. Moving on next terms *Eshtadeshesarvopakaranam*, it is observed that usually children eat these packets while walking on roads, playing in garden, laughing, sitting and watching TV so all those terms are not followed. So above all points it gets that the standard rule of eating food violates by eating package foods.

In *balyawastha*, the *dhatu* are immature and the child is *asampurnabala* that means the strength is not developed properly. In such tender age when they don't follow righteous food habits, the *dhatu nirmitee* will be hampered leading to poor disease resistance (*vyadhikshamatwa*). So, children become more prone for various disease.

The diseases we have observed due to package food are *twakrog*,

*krumirog*, *sthaulya*, *karshya*, *malabaddhata*, *dantarog* as *hetu* of *twakrog* and *krumirog* are similar i.e. *viruddhaahar*, *vidahianaapan*, etc. are *hetu* of *rasa*, *rakta*, *lasika*, *mansa dhatudushti*<sup>26</sup> and leads to different kinds of *twakvikar* and *krumirog*. Also some preservatives plays role in some *twakvikar* e.g. preservative INS319 causes dermatitis. *Sthaulya* and *karshya* are two opposite diseases seen in this because both are *rasavaha srotas dushtivikar* in which hamper of *agni* causes *mandagni* and *srotorodh* and creates the *vikara* with different *samprapti*. *Malabaddhata* is observed may be because these foods don't contain any roughage which usually helps for easy elimination of fecal matter. Also, these foods contain so many preservatives and additives e.g. preservative E330 (citric acid) which causes erosion of tooth enamel etc. may cause *dant shool* in children. So, these are the ill effects we have observed and studied in children who consume package food regularly.

## CONCLUSION

From the above study it gets to conclude that as package food does not provide any healthy or nutritious content from it rather causes ill effects on body. The number of consumptions of these packets are very high in now a day and developed so many diseases.

The percentage of *Twakrog* is 92% is high than other diseases which are *Krimirog* has 62.5%, after that *dantarog* is upto 22.5% and *malabaddhata* is in 20% patients seen. The *sthaulya* is in 5% patients and *karshyais* seen in 2.5% patients.

The main reason behind saying NO to package food because it violates

all the *aaharvidhi* rules, hampers the *agni* and causes *agnimandya* which leads to *srotorodh* and various kinds of list of diseases, poor *vyadhikshamatva* (immunity), as all these invites so many irreversible diseases which children as well as parents are unaware. The only slacking behavior by parents and stubborn behavior of some children making this condition more vulnerable.

So, suggestions that parents and children must be aware of these ill effects of package food. The fresh, healthy, nutritious food consumption must be highly encouraging. Regulation of *hitaahar* (balanced diet) and *aaharvidhivisheshayan* should be followed. As Acharya Kashyapa said *Aahar* is *MAHABHESHAM*. If you eat proper diet, there is no need of any medicine likewise the positive approach should be taken towards healthy food.

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