



A critical review of *Viruddha ahar* as per Ayurveda with special reference to processed food

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Abstract

Concept of Viruddha Ahar mentioned in Ayurveda is a unique concept that holds great relevance in today's era. The present article deals with the critical review of *Viruddha Ahara* which deals with the deleterious effects of food processing and consumption of poor food combinations on a person's health. The untoward effect of improper food processing and poor food combinations remains greatly overlooked in today's era. Ayurveda has clearly emphasized on the role of viruddh ahar as a potent disease causing factor. In today's era with rising numbers of various life style disorders, it becomes crucial to identify the factors contributing as incompatible diet and it's withdrawal for prevention of such diseases. Hence the various faulty dietary measures and regimens mentioned as per Ayurveda with reference to modern dietary rituals becomes very much important to prepare food based dietary guidelines typically for the geographical distribution of India. The article focuses on the modern perspective of different types of Viruddha ahar as per mentioned in Ayurveda and it's deleterious effect on health.

Keywords: Life style disorders, Processed food, food combinations, *Viruddha Ahara*

Introduction

Viruddha Anna is defined in ayurveda as foods which are opposite in quality of the dhatus that constitute our body.¹ Viruddha ahar has been mentioned as the *nidana* (aetiological factor) of many systemic disorders discussed by the *Acharyas*. As per Charak, consumption of food items in combination with another, which is inappropriate in relation to processing or consumed in incorrect time of the day or season, in inappropriate quantity in a incompatible environment can be considered as Viruddha Ahar or incompatible diet.² hence the concept of *viruddha ahar* not only throws light on improper processing of food but also the dietary regimens that have hazardous effect on health of an individual.

The concept of viruddha ahar mentioned in ayurveda becomes very much relevant in today's era with increased emergence of various lifestyle disorders associated with the increased consumption of junk foods. Junk food simply means an empty calorie food. An empty calorie food is a high calorie or calorie rich food which lacks in micronutrients such as vitamins, minerals or amino acids and fiber but has high energy.³ Eating a poor quality diet high in junk food is linked to a higher risk of obesity, depression, digestive issues, heart disease and stroke, type 2 diabetes, cancer and early death.⁴

The deleterious effect of viruddha ahar on health is well explained by Charak Acharya years back and with the help of modern technology and biochemistry, it becomes easier to study the effect of food-food interactions consumed in the form of junk foods, for it's potent pathogenic effect on health, if not consumed in moderation with reference to Ayurveda.

Aims and Objectives

1. To determine dietary incompatible factors in modern era in the light of ayurveda.
2. To help implement food based dietary guidelines typically for the geographical distribution of India on the basis of Ayurvedic principles.

Materials and methods

For review of literature, Ayurveda classics and books of contemporary medicine along with various websites have been referred.

Ayurvedic Review

There are 18 types of *viruddha ahar* (incompatible food) as per mentioned by Charak⁵

1. *Desha Viruddha* (incompatibility in terms of place of intake of particular food items)
2. *Kala Viruddha* (incompatibility in Time)
3. *Agni Viruddha* (incompatibility in gastric fire)
4. *Matra Viruddha* (incompatibility in Quantity)
5. *Satmya Viruddha* (incompatibility in wholesomeness)
6. *Dosha Viruddha*
7. *Samskar Viruddha* (incompatibility in mode of preparation)
8. *Veerya Viruddha* (incompatibility in potency)
9. *Koshtha Viruddha* (incompatibility in gut)
10. *Avastha Viruddha* (incompatibility in state of health)
11. *Kram Viruddha* (incompatibility in sequence)
12. *Parihar Viruddha* (incompatibility of contraindicated foods)
13. *Upachar Viruddha* (incompatibility in treatment)
14. *Paak Viruddha* (incompatibility in process of cooking)
15. *Samyoga Viruddha* (incompatibility in combination of food)
16. *Hriday Viruddha* (incompatibility in palatability)
17. *Sampad Viruddha* (incompatibility in richness of quality)
18. *Vidhi Viruddha* (incompatibility in rules for eating)

Among the 18 types of *Viruddha* mentioned by Charak, 6 of them identifies the improper dietary preparations while the rest denotes faulty dietary regimens associated with intake of food. Among the faulty dietary preparations (*matra viruddha, samskar viruddha, veerya viruddha, paka viruddha, samyoga viruddha, sampad viruddha*), Acharya Charak has mentioned intake of fish and milk together as *veerya viruddha*. As per Charak, both fish and milk is *madhura* in *rasa* and *vipak* and *mahaabhisyan*. On the other hand milk is *sita* in *veerya* and fish is *ushna* in *veerya* which renders them incompatible in terms of potency. Hence intake of it, causes *raktadusti* along with *srotarodha*.⁶ Intake of honey and cow's ghee mixed in equal proportion is considered as *matra viruddha* as per Charak.⁷ Intake of heated honey is considered as *Samskar Viruddha*.⁸ Intake of hot water after intake of pork meat is considered as *parihar viruddha*.⁹ Intake of cold water, food and *sita veerya aushadh* is prohibited as *upachar viruddha* after consuming *ghee*.¹⁰ Again, intake of improperly cooked food i.e. excessively boiled or uncooked food, food which is prepared using dirty cooking materials are considered as *paka viruddha*.¹¹ Intake of sour food items mixed with milk and intake of unripe *ahar* and *aushadh dravya* are considered as *samyog viruddha*¹² and *sampad viruddha*¹³ respectively as per Charak.

Desha, Kala, Agni, Satmya, Dosa, Koshta, Avastha, Krama, Hridaya Vidhi, parihar and *upachar viruddha* signifies the unhealthy dietary regimens to be avoided for preserving health.¹⁴

Charaka has also mentioned that those people who are able to digest *Viruddha Ahara* properly, who exercise very regularly, who are young and have a very good status of *Agni* can consume *Viruddha Ahara*.¹⁵

Relevance of food incompatibility in today's Era

According to WHO, a healthy diet includes fruit, vegetables, legumes (lentil, and beans), nuts and whole grains (e.g. unprocessed maize, millets, oats, wheat and brown rice). A healthy diet helps to protect diseases against malnutrition in all its forms, as well as non-communicable diseases (NCDs), including such as diabetes, heart disease, stroke and cancer. However, increased production of processed foods, rapid urbanization and changing lifestyles have led to a shift in dietary patterns. People are now consuming more foods high in energy, fats, free sugars and salt/sodium, and many people do not eat enough fruit, vegetables and other dietary fibres such as whole grains.¹⁶ As per WHO methods of food processing, preparation and cooking influence the nutrition value of foods.¹⁷

The processed foods such as bread, pasta, salad oil, mayonnaise, doughnuts, cookies, rice cakes, breakfast bars, chips, soda, candy and popcorn do not contain a significant micronutrient benefit. The high glycemic white flour products with added sweetening agents, flood the bloodstream with glucose without fibre, nutrients and these baked goods are also high in acrylamides and advanced glycation end-products, further increasing the glycoproteins in our tissues.¹⁸ The world health organization has classified processed meats (hot dogs, sausage, bacon and lunch meats) a class 1 carcinogen. AGE's are also highest in barbecued and fried animal products which also contain cancer causing chemicals such as heterocyclic amines, polycyclic aromatic hydrocarbons and lipid peroxidases, which are mutagenic.¹⁹ Refined carbohydrates may not just lead to being overweight and diabetic but also contribute to dementia, mental illness and cancer.²⁰ There is considerable evidence today that heart disease is not only promoted by saturated fat and increased animal products but also by refined carbohydrates, including white rice, white bread, sugar, honey, maple syrup and agave nectar.²¹

Processed and fast foods are high in salt. They also include high fructose corn syrup in most foods. Both sugar and salt intake increase stroke risk, especially when consumed daily for years. As per WHO, in both adults and children the intake of free sugars should be reduced to less than 10% of total energy intake. Sugar intake can be reduced by limiting the consumption of foods and drinks containing high amounts of sugars such as sugary snacks, candies and sugar sweetened beverages like carbonated and non-carbonated soft drinks.²² Method of food preparations is another factor playing pivotal role in occurrence of a number of diseases. Food fried in oil may create carcinogenic and mutagenic aldehydes.²³ Food that is fried such as in a fast food restaurant is usually cooked in oil that has been heated and used multiple times. One serving of French fries or fried chicken that is cooked in a fast food restaurant has 100 times the level of aldehydes designated as safe by the world health organization. Even the fumes are so toxic they increase the risk of cancer.²⁴

Certain types of foods when consumed together can result in the emergence of deleterious effect inside the body. As advised by natural hygienist Dr. Herbert Shelton²⁵:

1. Never eat carbohydrate foods and acid foods at the same meal.
2. Never eat a concentrated protein and a concentrated carbohydrate at the same meal.
3. Never consume two concentrated protein at the same meal.
4. Do not consume fats with protein

- 5 Do not eat acid fruits with protein
- 6 Do not consume starches and sugar together
- 7 Eat one concentrated starch food at a meal
- 8 Do not consume melons with any other food.
- 9 Milk is best taken alone left alone.

Identifying the potential health risks owing to the practice of improper dietary patterns, The International Conference on Nutrition (ICN), convened by FAO (food and agriculture organization) and the World Health Organization (WHO) in Rome in 1992, formulated strategies and actions for nutritional well-being and food consumption throughout the world. Governments are called upon "to provide advice to the public by disseminating, through the mass media and other appropriate means, qualitative or quantitative dietary guidelines relevant for different age groups and lifestyles and appropriate for the country's population." (FAO/WHO, 1992)²⁶

Developing Food-Based Dietary Guidelines²⁶

FBDG (Food Based Dietary Guideline)s should be developed by an interdisciplinary group including workers in agriculture, health, education, communication and food and nutrition science as well as representatives of the food industry and consumers. The initiative to develop such guidelines comes from policy-makers or practitioners in agriculture or health.

Dissemination of scientific materials and promotional activities by concerned groups can stimulate and encourage the establishment of a national working group.

Assessing food consumption patterns²⁶

Food consumption data can be collected at three levels by different methods; the data from each level have specific purposes and strengths and limitations. National food supply data provide gross estimates of food availability and show trends; however, they do not reflect food consumption and cannot identify population subgroups at risk of inadequate intake. Household data are useful for comparing food availability among subgroups, although they do not provide information about individual consumption. The rapid assessment procedure involves focus group interviews with selected target groups; it is a low-cost and useful way to gather information on food beliefs, behaviour and intake at community level.

Data about individuals are the most useful for assessing dietary adequacy. Food records, 24-hour recall, food frequency questionnaires, diet histories and food habit questionnaires may be used to gather information on individual food patterns. Each method has its strengths, specific applications and limitations, and accuracy may be improved by combining methods. Selection of the most appropriate data collection method is based on the objectives of the assessment, the foods or nutrients of primary interest, the need for group versus individual data, the level of specificity needed for describing a food and population characteristics.

Discussion

The concept of *Viruddha Ahara* mentioned by *Charak* clearly focuses on two aspects i.e, improper dietary patterns and dietary regimens that can cause potential health hazards if taken for a sufficient period of time depending on the general health status of an individual. The improper dietary

preparations mentioned by *Charak* are *Matra.Samskar*, *Veerya*, *paka*, *samyog* and *sampad viruddha*. As we have already discussed, *matra viruddha* is the mixing of two incompatible food items in equal quantity. *Charak* has cited the example of mixing honey and ghee in equal quantity. As per an animal research conducted on toxicity effect of honey and ghee mixed together in equal quantities, it reveals that increased oxidative stress generation, decreased albumin cobalt binding, advanced glycation end product formation, glucose and DPP-4 augmentation which relate to GLP-1 and GIP attenuation, liver function taste enzyme elevation, liver tissue inflammation, inflammatory cell infiltration and increased advanced glycation end products could be the possible cause of toxicity of equal ratio of honey and ghee²⁷. *Charak* has again opined that intake of heated honey as *samskar viruddha*. As per a recent research, heating of honey results into the formation of HMF (5-hydroxy methylfurfural). HMF concentration is widely recognized as a parameter affecting honey freshness because it is typically absent or is present in only very small amounts in fresh honeys, while its concentration tends to rise during processing and/or because of aging. Which may have deleterious effect on health. HMF has been reported to have negative effects on human health, such as cytotoxicity toward mucous membranes, the skin and the upper respiratory tract; mutagenicity; chromosomal aberrations; and carcinogenicity toward humans and animals.²⁸

Excessive heating of food products is mentioned as *Paka viruddha* in *Ayurveda*. As per a recent study, HNE (4-hydroxy-2-trans-nonenal), a toxic aldehyde is produced during the heating process of the frying oils. The study was conducted in French fries from six local fast food restaurants. The HNE, thus formed is incorporated into the French fries. Frequently consumed foods containing considerable amounts of HNE, a toxic aldehyde, may be a public health concern since HNE toxicity is related to a number of common pathological conditions.²⁹

Certain processing incompatibilities are observed, which leads the food to develop certain toxic chemicals or unwanted chemicals. Processing incompatibilities or mixing of certain incompatible food products together as a recipe is considered as *Samyog viruddha* according to *Charak*. One such example of *viruddha* cited by *Charak* is intake of milk with *amla* or sour fruits. There are three main categories of food; proteins, carbohydrates (starches and sugars) and hydrocarbons (fats) each of these differ in chemical composition. Each element requires a special adaptation of digestive juices secreted that aid in the process of digestion. They also require different lengths of time to digest. This chemical reaction in the body can either prohibit or assist in digestion, assimilation and absorption of the nutrients contained in the food element, depending on whether it is correctly combined. It also affects the quantity, quality and the length of time these digestive juices are secreted. Therefore, if these chemicals are imbalanced, then digestion becomes impaired. For example, carbohydrates require the digestive enzyme amylase to break down starch and sugar. Amylase requires an alkaline environment and is destroyed by mild acid. Protein requires the enzyme pepsin which is only present with the secretion of hydrochloric acid. These different processes of digestion cannot take place at the same time in an ideal way as both chemical processes interfere with each other. An acidic environment is ideal for the digestion of protein but inadequate for the digestion of carbohydrates. Milk is a good

source of fat and protein whereas fruits are a good source of carbohydrate. According to the director of the Preventive Medical Center of Marin, Dr. Elton Hass, fats and protein take longer to digest than do carbohydrates. If fruits are eaten at the same time as milk, it delays digestion of fruits leading to fermentation of fruit within the stomach which may lead to indigestion and bloating.³⁰

The improper dietary habits that have been enlisted as *Viruddha Ahar* as per *Charak* includes *Desha*, *Kala*, *Agni*, *Satmya*, *Dosa*, *Kostha*, *Avastha*, *Krama*, *Hridaya Vidhi*, *parihar* and *Upachar Viruddha*. Dietary habits influence the composition and metabolic activity of human gut microbiota. Dietary habits differ worldwide depending on the geographical locations (*desha*), the development level of countries, agriculture and cultural practices. Ethnicity influences the gut microbiota of individuals sharing a geographical location³¹. Thus intake of various continental or oriental dishes not indigenous to the area of consumption for a sufficient period of time may alter the gut flora of individuals belonging to the particular geographical location. Again poor dietary habits which are not in accordance to the seasonal variations (*Kala viruddha*) such as excessive intake of alcohol during summer can cause dehydration or heat stroke as hot summer days cause fluid loss through perspiration while alcohol causes fluid loss through urination. Again summer peak of sugar containing beverages intake, should be reduced by aiming to replace it by other non-sugar-containing beverages during summer activities. Other dietary habit such as consumption of hot and cold food simultaneously is considered as *veerya virudh* as per *ayurveda*. The human body digest cold and hot meal differently. Intake of cold beverages immediately after intake of large meal may disturb the digestive process. The human digestive system is sensitive to different temperatures. Cold food shock the digestive system and make the gut work overtime in order to break down nutrients in the food. This can lead to bloating or digestive sensitivity. However, in hot food, nutrients are already partially broken down. Simultaneous intake of hot and cold food together may delay the digestive process.

Improper eating patterns such as skipping meal or taking food when one is not hungry (emotional eating) or excessive eating (*agni viruddha*), intake of food immediately after exercise (*Avastha viruddha*), intake of food under a disturbed state of mind (*hriday viruddha*) etc. is taking its toll on children as well as adults. Stress can lead to alteration in the gastrointestinal motility, increase in visceral perception, changes in gastrointestinal secretions, increase in intestinal permeability. All of these factors lead to impaired digestion of food, improper metabolism giving rise to a number of metabolic diseases.

Thus to overcome the challenges imparted by such unhealthy dietary patterns on individual health, it becomes important to analyse data to determine the extent to which health issues are diet related and which food consumption behaviour needs to be changed. In this regard food based dietary guidelines and dietary conducts advocated by Ayurveda which is very specific to particular geographical location, season and even individual constituency should be employed for every individual. These guidelines can be implemented through national policies and programmes. They should be tested before they are published for the general public. Help of educational and motivational media can be sought for communicating these guidelines to the public.

Although we have discussed the various adverse effects of improper food combinations and faulty dietary techniques on health, yet it is to be considered that these factors produce little impact on health if consumed within certain limits or depending on individual health status. Hence proper analysis of data to ascertain a safe frequency profile of consumption of such foods for every individual also need to be incorporated while preparing a food based dietary guidelines.

Conclusion

As the saying goes “eat your food as medicine or you will end up taking medicine as your food”, it is beautifully justified by Ayurveda thousands of years back. The morbid conditions related to faulty dietary practices are beautifully explained in Ayurveda as *Viruddha ahar*. Identification of the factors prevalent in today’s era pertaining to dietary incompatibilities mentioned as per Ayurveda has become of utmost importance to acknowledge the therapeutic potential of lifestyle interventions for prevention and control of a number of lifestyle disorders. The article carries scope for new research in the field of Ayurvedic dietetics to identify and observe the effect of incompatible factors with respect to modern era. The article also focuses on formulation and adoption of food based dietary guidelines as per Ayurveda to help prevent the untoward effects of faulty dietary practices.

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