



SCIENTIFIC REVIEW OF EFFECT OF VIRUDDHA AHARA (FOOD INCOMPATIBILITY) ON HEALTH OF CHILDREN

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ABSTRACT

A very nutritious meal containing individual food items of high nutrient values, but if combined in wrong manner may lead to loss of all nutrient values and result in malnourishment of the child. The ancient *Ayurvedic* texts have laid immense importance on various food combinations which are unhealthy to consume and cause a diversity of disorders and at times may prove fatal as well. The various examples of unhealthy food combinations described in ancient texts comprising of different aspects related to dietetics have been given on the basis of practical observation of scholars and it reduces the need of sophisticated laboratory arrangements to avoid these combinations. However, viewing the harmful effects caused by these unhealthy combinations described in *Ayurvedic* texts, they must be kept away from the child to avoid their potential harmful effects.

KEYWORDS: Ahara, diet, Viruddha ahara, diet incompatibility, Ayurveda.

INTRODUCTION

Among various aspects of nutrition of our body, the correct food combinations have an indispensable role. A very nutritious meal containing individual food items of high nutrient values, but if combined in wrong manner may lead to loss of all nutrient values and result in malnourishment of the child. The ancient *Ayurvedic* texts have laid immense importance on various food combinations which are unhealthy to consume and cause a diversity of disorders and at times may prove fatal as well. The wrong combination of food articles may lead to the changes at physical, chemical or both levels and leading to deficiency in the nutrients, hence defeating the very purpose of intake of diet. An attempt has been done in the present paper to describe the ancient concept of dietetic incompatibility and its harmful effect on child's body with the examples described in ancient *Ayurvedic* texts.

Definition of viruddha ahara

Any food items that cause aggravation of the *doshas* but do not expel them out of the body are categorized as *viruddha* (incompatible).^[1]

The food *viruddha* in nature if consumed by an individual cause the vitiation of all the *doshas* in body but do not push out of body by *vamana* (vomiting) or

virechana (purgation) and cause various disorders in our body by vitiating the bodily *dhatu*s (tissues).^[2]

All the *vairouddhika ahara* (incompatible food) are opposite to the properties of bodily *dhatu*s (tissues), hence they cause the deformation in *dhatu*s (tissues) and give rise to various disorders in our body.^[3]

The food items can be *viruddha* (incompatible) in *guna* (attributes), *samyoga* (combination), *samskara* (processing), *desha* (habitat), *kala* (time period), *matra* (quantity) or few food items are *viruddha* by their *svabhava* (nature).^[4]

The components or types of vairouddhika ahara (incompatible food)

Different types of incompatibilities between the food items along with examples are described below:

Desha viruddha (habitat incompatibility)

Use of *ruksha* (dry) and *tikshana* (sharp) food items in *dhanvana desha* (arid region) or consumption of *snigdha* (demulcent) and *sheet* (cold) food items in *anupa* (marine or marshy regions) *desha* is considered as *desha viruddha* (habitat incompatibility).^[5]

The arid region has generally dry climate and hence there is already presence of dryness in the food items and in

the body of the inhabitants of this region, so the further consumption of these food items will result in aggravation of dryness in body hence such food items are considered as incompatible in this region. Food items which are lubricative in nature are considered as wholesome in arid region.

Kala viruddha (incompatibility according to time period)

Consumption of *sheet* (cold) and *ruksha* (dry) food items in cold season and *katu* (pungent) and *ushna* (hot) food items in hot season is considered as *kala viruddha*.^[6]

During the winter season there is excessive cold and dryness in the atmosphere and hence the food items which are hot and wet in nature are preferred to maintain the balance in the adaptation, but consumption of food items same in nature to that of the season is considered as incompatible.

Agni viruddha (digestive power incompatibility)

Consuming the food items which are antagonistic to the four types of *agni* which prevail in the individuals.^[7]

As for example the *tikshna agni* (sharp digestive power) is capable of digesting food items which are heavy in amount as well as in digestion, but consuming food items light in nature and amount is considered to be incompatible at the level of *agni*.

Matra viruddha (incompatibility in amount)

Consumption of *madhu* (honey) and *ghrit* (clarified butter) in same amount.^[8]

Madhu (honey) and water in equal amount, two types of fatty substances in equal amount, water and *sneha* (fatty) items in equal amount, *madhu* (honey) and *sneha* (fatty) items in equal amount or *madhu* (honey), *sneha* (fatty) substances and *akash jala* (rainy water) in equal amount all are considered as examples of incompatibility in quantity of food items.^[9]

Satmya viruddha (incompatibility at the level of palatability)

A person who has become *satmya* (palatable) of consuming *katu* (pungent) and *ushna* virya (hot potency) food items, prescribing *madhur* (sweet) and *sheet virya* (cold potency) food items.^[10]

By virtue of one's habit a person becomes habitual to a certain combination of food items and if this person is given food items which are opposite to his palatability then this will result in incompatibility at the level of palatability.

Dosha viruddha (incompatibility at the physiological level)

To consume the food items which are similar in properties to any one of the three i.e. *vata*, *pitta* and *kapha* doshas is considered as *dosha viruddha*.^[11]

The *doshas* are the physiological units of our body according to *Ayurvedic* principles. Each *dosha* has its characteristic property and if a person is involved in excessive consumption of food items which are similar in properties to any one of the *dosha* then it will result in increment of the concerned *dosha* whereas depletion of other *dosha*, which will create an imbalance in the physiology which will result in incompatibility due to that particular *dosha*.

Samskara viruddha (incompatibility due to processing of food)

Incompatibilities may occur due to certain processing involved in food as for example roasting of meat of peacock in the stick of *eranda* (castor).^[12]

Few other examples are: *ghrit* (clarified butter) which is kept for more than ten days in the container made up of *kansya* (bronze), consumption of *madhu* (honey) with items which are *ushana* (hot) in nature and in summer season, cooking *makoya* (*Solanum nigrum*) in the utensil in which fish or *shunthi* (ginger) has been cooked earlier, processing of *poi* (Indian spinach) with *tila kalka* (paste of sesame).^[13]

Food processing methods can cause certain physical or chemical changes in the finished product which may cause the incompatibilities.

Virya viruddha (incompatibilities due to potency)

Consumption of *sheet virya* (cold potency) food items in combination with *ushna virya* (hot potency).^[14]

Virya (potency) is the inherent property of any substance by virtue of which it causes its pharmacological action in our body. The combination of food items of two opposite potency will result in neutralization of their action and result in incompatibilities or it may result in production of food items of toxic nature which may cause disease.

Kostha viruddha (incompatibility due to the nature of digestive system)

The person possessing *krura kostha* prescribed with medicine of less purgative action and *mridu kostha* with *guru* (heavy) and *tikshana* (sharp) purgative activity drugs result in *kostha viruddha*.^[15]

Hence the person having *mridu kostha* should be given food items or drugs which are mild in nature and their purgative action as in these persons purgation occurs quite easily whereas reverse is true for *krura kostha* individual ignoring the above regime causes incompatibility.

Avastha viruddha (Incompatibility due to specific condition)

The persons involved in excessive physical activities, excess coitus, and exercise prescribed with the diet which increases *vata* and the one who are lazy and sleep

excessively given the food items which cause the increase in *kapha* causes *avastha viruddha*.^[16]

Excessive involvement in physical activity causes aggravation of *vata* hence the concerned person must be allowed to eat the food items which pacify his increased *vata*, whereas one who is lazy or sleeps excessively causes increase in his *kapha*, so he should be given the types of food items which pacify his *kapha* to maintain physiological balance.

***Krama viruddha* (incompatibility due to order of intake of food)**

If a person consumes food without excreting all the wastes of food such as stool and urine, without feeling hungry or do not consumes food even in excessive hunger results in incompatibility due to *karma* (order).

One must eat food on time after feeling proper hunger and after excretion of all the waste products and restrain from over fasting, failing which it results in incompatibility.

***Parihara viruddha* (incompatibility arising due to restraining from avoidable deeds)**

If a person consumes *ushana virya* (hot potency) food items after eating pork or alike heavy meats then it causes incompatibility due to *parihara*.^[17]

***Upchara viruddha* (incompatibility due to food interaction with item taken with or after meal)**

Consumption of cold water after taking *snigdha* (demulscent) food items like *ghrit* (clarified butter).^[18]

For *snigdha* or fatty food items the suggested *anupana* is hot water and hence consuming cold water is considered as *upachara viruddha*.

Upchara viruddha related to consumption of food is comparable with the interaction of food with certain drugs. Food drug interaction outlines various food items which can adversely or favorably affect the action of a particular drug.

Diet- drug interaction

The terms "nutrient-drug interaction" and "diet-drug interaction" refer to the process whereby the consumption of a food affects the absorption, metabolism, action, retention, and/or excretion of a drug or conversely the process whereby taking a drug affects the absorption, metabolism, action, retention, and/or excretion of a nutrient.^[19]

Certain medications may interact with both the food eaten and the nutrients present in food. When the body is unable to use a nutrient due to a drug that has been taken, a nutrient-drug interaction is being suspected to have occurred.^[20]

Effects of Foods and Food Components on Drug Absorption and Bioavailability

The ways in which foods and their components can affect the absorption and bioavailability of a drug can be one of the following:

Physicochemical binding: The food component and the drug can bind to each other physicochemically, so that neither the drug nor the component can be absorbed as for example, the antibiotic like tetracycline can bind with calcium.

Stability: The food can alter the stability of the drug preparation in the stomach, so that it breaks down before it can be absorbed.

Gastric emptying: The drug or food can change the rate at which the stomach empties, and therefore the rate at which the drug arrives in the small intestine.

Competition for absorption: Certain drugs use the intestine's natural transport systems to cross the intestinal wall which is used by the food nutrients as well. For example, L-dopa and methyl dopa use the same transporter mechanism as aromatic amino acids from proteins, so absorption of these drugs is decreased if eaten with a high-protein meal at the same time of taking the drug.^[21]

***Paka viruddha* (incompatibility due to cooking)**

Cooking of food items with the wood that is infected or foul smelling, less cooking resulting in raw rice or excessive cooking or burning of the food is considered as incompatibility due to *paka* (cooking).^[22]

The raw cereals and other food items are made palatable by cooking.

***Samyoga viruddha* (incompatibility due to combination)**

Consuming *amla* (sour) taste food items along with milk.^[23]

Few other examples of incompatibility due to combination are:^[24]

- ✓ Newly sprouted grains with fats, *madhu* (honey), milk, *gur* (jaggery), *urad* (black gram), *gramya*, *anupa*, *jaliya mamsa* (meat of domesticated, marine and marshy areas animals).
- ✓ *Madhu* (honey) with hot water.
- ✓ Consumption of fish with jaggery and sugar.
- ✓ Jaggery with *makoya* (black night shade).
- ✓ Raddish and *gur* (jaggery) with *madhu* (honey).
- ✓ Fish, especially fish named *chilchim* with milk.
- ✓ Banana with milk, curd, butter milk and *tala phala* (palm fruit).
- ✓ *Lakucha* (monkey jack) fruit with milk, curd and *urad* (black gram).

Several food items on combining with other food items may react with each other chemically and produce some toxic food which may be harmful for our body.

The concept of *samyoga* of food items is comparable to the food combinations in modern science.

Food combinations

Food combining refers to the combination of foods which are compatible with each other in terms of digestive chemistry.^[25] Our digestive system works best when meals are simple and combinations are minimal if we apply judiciously food combining principals then the poisonous by-products of poor digestion can be easily avoided.^[26]

Protein-Protein Combinations

Composition of two concentrated proteins of different character such as nuts and cheese should not be combined. Incompatible combinations of two different concentrated proteins should be avoided.^[27]

The example of this incompatibility in ancient texts is combination of newly sprouted grains with milk, *urad* (black gram), *gramya*, *anupa*, *jaliya mamsa* (meat of domesticated, marine and marshy areas animals).^[28]

Protein-Fat Combinations

Fat has an inhibiting influence on digestive secretion and it decreases the amount and activity of pepsin and hydrochloric acid, needed for the protein digestion.^[27]

Example of this unhealthy combination found in ancient texts is of newly sprouted grains with fats,^[28] which is worth avoiding.

Starch-Starch Combinations

This combination of food items is avoided to restrain from overeating of starches rather than as a means of avoiding bad combinations.

Mild starch containing vegetables can be combined with more starchy vegetables e.g. carrots with potatoes, but their combination with high protein content diet such as grains and legumes must be better avoided.^[27]

Fats in Combination with Other Foods

Fats impeded the digestion of other foods and particularly if consumed with starch, it delays the passage of the starch from the stomach into the intestine.^[29]

Protein carbohydrate combination

On the one hand carbohydrates are mostly digested in the small intestine by the juices of pancreas such as pancreatic amylase which need an alkaline medium for digestion; the proteins are mainly broken down into smaller molecules in the stomach itself by pepsin which needs acidic medium to work.

Instead of being split up into amino acids proteins eaten with carbohydrates may become toxic and produce allergy.^[30]

The examples of consumption of fish with jaggery and sugar, banana with milk, curd, butter milk and *tala phala* (palm fruit).^[28] are of similar nature as banana, sugar and jaggery have high sugar content and other food items are rich in protein. This pathology is similar to the mechanism involved in formation of *ama* according to *Ayurvedic* concept, which results in many immunogenic diseases. One of the hazards of *viruddha ahara* is formation of *ama visha*.

Few other noteworthy food combination restrictions are:^[30]

- Fruits should be preferably eaten alone as they get digested very quickly. If they are eaten with any other food like cereals or *dals* and meats they cross react, ferment and ultimately putrefy.
- Melons must be eaten alone as they are more than 90% liquid and leave the stomach very quickly if they are not with other foods.
- Avoid taking dairy products with citrus foods.
- Milk is incompatible with fish, meat, melons, curd, citrus fruits, bread and cherries.

Hridaya viruddha (incompatibility due to one's opposite inclination)

The food which is opposite to one's internal desire or likes is considered as incompatible due to *hridaya*.^[31]

Psychological value of food is equally important to the nutritious value of food. The food prescribed to an individual should consider his likes and dislikes, cultural and religious inclination in order to ensure adequate palatability.

Sampada viruddha (incompatibility due to consumption of immature food items)

Consuming the food items which are not fully ripen or developed full *rasa* (taste), the one which is tasteless due to time factor or whose taste has changed are considered as *sampada viruddha*.^[32]

The raw material used for preparing food must be of proper developed stage, the cereals, fruits and vegetables must be ripened adequately as desired for consumption.

Vidhi viruddha (incompatibility due to improper food conduct)

If the food is not consumed in isolation or full mental presence or violating the other guidelines and rules for consumption of food then it causes incompatibility due to *vidhi*.^[33]

One should follow all the rules and regulations regarding correct intake of food to cater incompatibility Other examples of *viruddha ahara* (food incompatibility) in ancient texts

Other than the examples enumerated in types of *viruddha ahara* there are certain other common examples described in ancient texts which are worth describing are given below:

- Vegetable of *paushakar* (lotus stem or root of castor) and *rohini* (variety of chebulic myrobalan) fried in mustard oil.
- Meat of pigeon with milk and honey.
Both of these combinations can cause *rakta klinnata* (wetness of blood), *dhaminipratichaya* (dilatation of vessels), *apasmara* (epileptic fits), *shankhaka* (type of headache), *galaganda* (cervical lymphadenopathy) and *rohini* (diphtheria)^[34]
- Drinking milk after consumption of *mooli* (raddish), *rasona* (garlic), *sahajana* (drum stick plant), *arjaka*, *sumukha*, *surasa* (varieties of basil) may lead to *kustha* (skin disorders).^[34]
- Milk is considered incompatible with following food items: *amra* (mango), *aamrataka* (Indian hog plum), *matulunga* and *jambiri nimbu* (types of lemon), *lakocha* (monkey jack), *karmarda* (*Carissa carandus*), *mocha* (banana), *bera* (ziziphys), *koshamra* (ceylon oak), *kamarakh* (*Averrhoa carambola*), *jamun* (*syzygium cumini*), *kaitha* (wood apple), *imli* (*tamarandicus*), *akshota* (walnut), *panas* (jack fruit), *narikela* (coconut), *dadima* (pomegranate), *aamla* (embelica), all types of *amla* (sour) taste food items whether in liquid or dried state, *kanguni* (*setaria italica*), *kodo* (*paspalum scrobiculatum*), *motha* (*phaseolus aconitifolius*), *kulaththa* (horse gram), *urad* (black gram), white beans.^[34]
- Heated honey is considered as incompatible.^[35]
- Vegetable of *makoya* (*solanum nigrum*) cooked in any type of utensil and kept overnight is considered as incompatible.^[35]
- All *ushna* (hot) food items are incompatible with *Madhya* (alcoholic drinks), *madhu* (honey), *dadhi* (curd) and *bhallataka* (*semicarpus anacardium*)^[35]

Disorders caused by consumption of *viruddha ahara* (incompatible food)

Diet incompatibility causes few common hazards to our body which are described below:

Consuming incompatible diets can cause *shandyata* (infertility), blindness, *visarpa* (erysipelas), *udara roga* (ascites), *visphota* (bolis), *unmada* (mental disorders like mania), *bhagandara* (anal fistula), *murcha* (faintness), *mada* (solomence), *adhyaman* (flatulence), *galgraha* (disorders of oral cavity), *pandu* (nutritional anaemia), *ama visha* (indigestion or formation of partially digested intermediates), *kilasa* (vitiligo), *kustha* (skin disorders), disorders of *grahini* (duodenum), *sotha* (oedema), *amlapitta* (heartburn or peptic ulcers), *jwara* (pyrexia), *pinasa* (rhinitis), *santana dosha* (disorders in the progeny) and sometimes may prove fatal and cause death.^[36]

Other than above disorders some other disorders which may occur are *vidradhi* (abscess), *gulma* (abdominal

abnormal growth), *yakshma* (tuberculosis), loss of *teja* (lusture), *daurbalya* (weakness), *smriti kshaya* (loss of memory), *buddhi kshaya* (loss of intellect), *indriya nasha* (loss of senses), *chitta nasha* (anxiety), *raktapitta* (bleeding diathesis), *ashta maha gada* (eight chronic diseases) and death as caused by poison.^[37] Consuming incompatible foods can cause disorders lethal in nature and death in the end.^[38]

Conditions in which *viruddha ahara* (dietetic incompatibilities) do not cause much harm

Although there are harmful effects of consuming incompatible foods on anyone who consumes them, but there are indications in ancient text of few exceptional conditions in which consumption of small amount of *viruddha ahara* do not cause the above stated harms. Few of the exceptional conditions are:

- ❖ The person who has been accustomed of consuming *virudha ahara*.
- ❖ Consumption of incompatible diet in very less amount.
- ❖ Person whose digestive *agni* is provoked or is sharp.
- ❖ Persons who are in habit of consuming *snigdha* (demulscient) food items daily.
- ❖ Persons who is involved in vigorous exercise or are strong.

In all the above conditions the eaten incompatible food do not cause any harm.^[39] But since children are totally dependent on their parents for their diet and are not involved in too much exercise or of stronger body, so children are at greater risk of developing hazards due to dietetic incompatibility. Hence utmost care must be taken by the parents not to include any incompatible combinations in child's diet.

DISCUSSION AND CONCLUSION

Ancient texts have dealt the topic of food incompatibilities that arise due to unhealthy combinations in very detail covering variety of aspects which may be related to combination of food along with the examples, including the characteristics of food items as *rasa* (taste), *guna* (attributes), *virya* (potency), *vipaka* (specific digestion), amount of food items, incompatible in accordance to the digestive *agni*, *prakriti* (natural temperament), *desha* (native place of food and individual), *samskara* (processing) of food, order of taking various food items etc. on the other hand the concept of food incompatibility in modern science is restricted to the chemical composition of food items which are consumed and their unhealthy combination with respect to the nutrient content of food as fat, protein or carbohydrates and their effect on digestion and various interaction of food with different medicines, it does not pay much importance to the other aspects of food items which are described in ancient texts. *Samyoga* can have harmful effect as seen in the case of certain food and drug interactions where one food item causes decreased absorption or metabolism of certain drugs or other nutrients for example food items rich in phytates

and calcium salts cause hindrance of absorption of iron, similarly there are food items which cause decreased absorption of iodine and are labeled as goitrogenic as cassava, maize, bamboo etc. The various examples of unhealthy food combinations described in ancient texts comprising of different aspects related to dietetics have been given on the basis of practical observation of scholars and it reduces the need of sophisticated laboratory arrangements to avoid these combinations. But in order to know the changes which occur in food items due to certain combinations which might be due to some change at physical, chemical or ecological level needs to be scientifically and clinically assessed. However, viewing the harmful effects caused by these unhealthy combinations described in *Ayurvedic* texts, they must be kept away from the child to avoid their potential harmful effects.

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