

Methods to maintain a healthy life through ayurvedic dietetics namely Ahara Vidhi Visesayatana in the current scenario

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Abstract

The main component of the human body are water, protein, carbohydrates, fat and minerals which is obtained from the food. The proportion of these components may vary according to the age, sex and states of nutrition etc. Proteins, carbohydrates, fats, minerals, vitamins, and water are some of the important nutrients that make up food as a source of bio-energy. *Ahara* and the way it is consumed both carry identical values in Ayurveda. Ayurvedic philosophies clearly reflect the historical, empirical, and aesthetic part of *Ahara Vidhi* (Dietetics) and consider *Ahara* as *Mahabhaishajya*. Ingested food is bio-transformed into body entities. If food possess qualities opposite to body entities, such food keeps these body entities ill nourished. In recent times, due to the changes in life style which remarkably altering the diet pattern of an individual. As a result, one's condition becomes so difficult that he/she is unable to take food as per his/her requisites. This paved the way to carry out a review on *Asta Ahara vidhi visesayatana*- eight factors which determine the outcome of various types of food in the current scenario.

Keywords: Ahara; Ayurvedic dietetics; Food processing; Food quality; Food toxicity

1. Introduction

Diet has been highlighted by Ayurveda as a vital component of a healthy lifestyle. It's possible that no other branch of science has gone as far as Ayurveda in describing the special effects of nutrition. The *Dravya* (substances) which are chewed and swallowed into the stomach through oesophagus are called *Ahara*.¹ While consuming the *hitahara*, there will be well nourishment of purusha (balanced doshas and dushyas) and *ahitahara* results in manifestation of diseases². Ayurveda has provided specific guidelines and a procedure for taking the *Ahara* for both healthy and diseased states of an individual. A healthy diet is a major factor in the body's growth and development, whereas an unwholesome diet contributes to a number of disorders³.

The concept, known as *Ahara Vidhi visesayatana* (gives indication of factors affecting the fate of ingested food), contains all the rules about diet and drinks, which a person should be followed. 8 factors which determines whether *ahara* is proper or improper (factors for method of dieting) includes -*Prakriti*: Nature and Quality of food, *Karanam*: Method of food processing (Food processing and technology), *Samyoga*: Combination of food, *Rasi* : Quantity of food, *Desa* : Habitat, *Kala* : Time of food intake, *Upayoga samstha*: Regulations of using food, *Upayoktha* : Consumer⁴.

In India and other developing countries, majority of pregnant women consumes inadequate and ill-balanced diets. From the diet and nutritional status survey across India, it is quite understood that diet of low-income groups are deficient in almost all dietary essentials. The caloric intake ranged from 1200 to 1800 Kcal and the protein intake from 30 to

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40g/day. The diets were deficient in proteins, essential minerals and vitamins⁵. Iron deficient anemia was widely prevalent in India. Manifestation of signs and symptoms due to Vitamin A and Vitamin C deficiency were quite common⁶. Food is a key component in maintaining the immunity in human body, which seemed to be declining due to unhealthy food habits. Ayurveda explains the wholesome dietetics through *ahara vidhi visesayatana*. Using this fundamental principles; this article gives a brief review of *Astahaara vidhi visesayatana* with its parallel literature to improve the nutritional status of an individual as well as to decrease the global burden of disease to a certain extent.

2. Prakriti

Prakriti is inherent nature of a food item. E.g. : *masha* (urad dal) is by nature *guru* (digest slowly), while *Mugda* (green gram) is *laghu* (digest quickly). Pork meat is *guru* but meat of deer is *laghu*⁷. It is natural or original quality of food substances which includes its nutritive value.

2.1. Current day scenario

There are numerous hybrid foods now in use. The hybrid species known as Tambacu (fish variety) was created by mating male *Piaractus mesopotamicus* with female *Colossoma macropomum*, also known as tambaqui. Because of its quick development and weight increase as well as its higher tolerance to stress and parasite infections compared to other closely related species, the Tambacu is regarded as an economically significant species for Brazilian aquaculture. But possess some demerits such as decrease in its innate quality of nutrient availability to human body⁸. In case of iron fortified rice nutrient availability of iron is increased without any change in the availability of other nutrients. In total while considering the Tambacu and Iron fortified rice the innate quality (*prakriti-swabhava*) is decreased and increased respectively.

3. Karana

Karana also known as *samskara*. It refers to the processing of substances that changes their intrinsic qualities. It involves various food processing techniques like Dilution, application of heat (distillation, vaporization), emulsification, flavouring, impregnation and preservation⁹. The material of the container all contribute to this alteration in the quality of food. The *Swabhava Guna* or *Prakruti* of drug are the qualities from origin of that substance. Through *Samskara* one can increase or decrease the qualities of the food. Example:- *Rakta Sali* (Red rice grain) soaking in water and frying on fire becomes *laja* (beaten rice). The qualities of *agni* (fire) can be used for the processing of food E.g:- Cooking makes raw rice to a soft and edible one¹⁰.

Churning makes *dadhi* (curd) to *takra* (butter milk) is also a type of *samskara* where the *dadhi* is *sothakara* (causes inflammation) but after *samskara* it becomes *sothahara takra* (subsides inflammation). Some other *samskaras* explained in the classics includes- *Bhajana* (Pot) : Cooking in earthen pot makes food tastier. *Desa* (Place): Pickle kept in cool & dark places are more preserved and can be consumed for a long time. *Triphala Kalka Lepa* to be done in *Loha Patra* provides *Rasayana* effect. *Kala Prakarsha* : After keeping for 15 day (for *Asava* and *Arishta* preparation) it becomes fermented. To increase the potency of drug one can do *Bhavana* with expected qualities of *Dravya Kwatha* where the *guna* get changed by either destruction of *dravya* or sustaining the *dravya*. The purification of various mineral origin drugs this *bhavana samskara*¹¹.

3.1. Current scenario

Various food processing method includes canning, fermentation, freezing, adjusted environmental packaging, pasteurization, smoking etc... These techniques causes both chemical and physical changes in the food substances. They unquestionably enhance the food's aesthetics, flavour, shelf life, and preservation. At the same time, they are altering the characteristics of dietary ingredients, rendering them unfit for human consumption and contributing to a variety of diseases¹². According to contemporary viewpoints, processing techniques are used to preserve food, boost food's digestibility, improve colour and flavour so that it looks better and eventually enhance craving. But they shorten cooking times which becomes a major contributor to a multitudes of diseases¹³. Example When food is microwaved, the water molecules in it vibrate at a very high frequency, cooking it quickly and saving time, but it also alter its chemical composition. Many times, food is microwave-cooked in plastic containers. The threat of using a microwave oven is that - carcinogenic chemicals can leak into food from plastic and paper packaging or covers¹⁴.

The Nutrition Action Newsletter in January-February 1990 issue detailed harmful substances leaking from the packaging of popular microwaveable items like pizza, chips, and popcorn. While fresh food offers a better nutrient

intake than frozen food, frozen products initially lose fewer nutrients over time due to oxidation even in a frozen condition¹⁵.

4. Food Packaging - Merits and Demerits

4.1. Merits

Food is an ideal medium for growth of microorganism. Therefore, by inhibiting the growth of these as well as increasing the shelf-life packaging is mandatory. The food industry is constantly searching for novel packaging techniques which are less aggressive with food, with lower energy consumption, and more effective against pathogenic microorganism.

Packing plays numerous roles such as Storage, Protection, Information regarding the ingredients, Warning about the risks derived from improper use, Nutritional data, Price, Greater ease and safe transportation and as a Marketing tool¹⁶.

4.2. Packing Methods and its demerits

4.2.1. Canning

Canning is a method to preserve food in jar at high temperature for a long time, killing microorganisms and inactivates enzymes that could cause food to spoil. The heating process purchases air from the jar, creating a vacuum seal as food cools¹⁷.

Disadvantage of canning

Poor handling of metals can result in cracking of “internal lacquer”. This exposes product to come in direct contact with underlying metal- leading to corrosion. Bisphenol A and Bisphenol F enter from can lacquer into canned foods possess several health impairments¹⁸.

4.2.2. Inked paper

According to FSS (food packaging) Regulations, 2018 the printed surfaces shall not come into direct contact with food. Heat, oil and water in food increases migration rate of these inks to food. Heavy metals like Titanium, Chromate, Molybdenum and iron in ink production are really dangerous to health¹⁹.

4.2.3. Plastic containers

Plastic containers are made of PVC - they release Phthalates (Chemicals used to make the plastic boxes more malleable). This could result in Hormonal disruption, Obesity, CVDs, Impact kidneys. Bisphenol A in water bottles are carcinogen²⁰.

4.2.4. Role of antinutritional factors and its removal

Anti-nutritional factors refers to secondary or natural metabolites. Secondary metabolites are regarded as the final outcomes of primary metabolites and do not participate in metabolic processes. For instance, lectins are a category of glycoproteins discovered in many plants, particularly in beans. Haemglutinin (Lectin) found in legumes bind to epithelial cells lining of the intestine, potentially altering the gut permeability. They are threat to gut health and this allow passing of bacteria through the gut into the blood-stream. Heating, Pressure-cooking for 45 min(samskaras) will cause removal of lectin and lowers the rate of cardiovascular disease, weight loss and type 2 diabetes²¹.

5. Samyoga

Samyoga refers to the amalgamation of two or more substances, leading to the emergence of distinctive characteristics or properties. Example - combination of Madhu (honey) and Ghrita (ghee) ;Matsya (fish) and Payas (milk). Sometimes, it enhances the quality whereas sometimes harmful to our body. Harmful combinations are called *virudha*. *Virudhaharas* are the food substances which causes *utklesha* of doshas and does not expels out the vitiated *doshas* from the body. E.g:- Combination of honey & ghee in equal proportion. The separate consuming of milk and fish not causing any disease but in combination causes skin diseases.

In Ayurveda Impotence, blindness, erysipelas, ascites, pustules, insanity, fistula in ano, fainting, tympanitis, throat spasms, anaemia, leucoderma, leprosy, Irritable bowel syndrome, oedema, acid gastritis, fever, rhinitis, genetic abnormalities, and even mortality are all caused by the regular consumption of *Virudhahara*²².

5.1. Current scenario

A new branch of study called Trophology, which studies the combination of fundamental dietary categories. According to this discipline, proteins can be ingested in numerous ways and shouldn't be coupled with starches and carbohydrates. This is so because starches need an alkaline environment, and salivary amylase contains ptyalin, an enzyme that converts starch to maltose. More amylase is added to the process in the small intestine, where the maltose is further broken down into simple glucose, fructose, and galactose. These are taken up by the body's bloodstream and sent to the liver, which distributes the energy to the cells that require it. If there is no urgent need, glucose will either be transformed into fat to be stored in adipose tissue or into glycogen to be stored as glycogen in the liver. When starches and proteins are consumed together, the absorption of one will be slowed by the other. Similar to how consuming sugar and acidic fruits prevent the action of ptyalin and pepsin by decreasing saliva flow and delaying digestion²³.

6. Rasi

Rasi is the qualities of food according to their quantity. It is of 2 types. *Sarvagraha* and *Parigraha*. *Sarvagraha* - determining the quantity of whole ingredients while we are taking a meal. *Parigraha* - determining the quantity of individual ingredient. Quantity of food (*ahara matra*) taken must depend upon the quality of food like *guru*, *laghu* etc.

Foods like *shali* variety of rice (*Oryza sativum*), *shashtika* variety of rice (variant of *Oryza sativum*), *mudga* (green gram), common quail, grey partridge, meat of rabbit, Indian sambar, meat of deer, meat from aquatic as well as marshy land animals, flour (pastry), sugarcane juice, sugar preparations, milk and milk preparations, *tila* (*Sesamum indicum*) and *masha* (*Vigna mungo*-black gram) etc. are considered as *guru* since they are naturally difficult to digest²⁴.

In Ayurveda according to the quality of food, it is recommended that heavy (*guru*) food items should be consumed up to one third or half of the saturation point (stomach capacity) even light (*laghu*) food items shouldn't be consumed in excess in order to preserve the power of *agni* (digestive capacity)²⁵.

6.1. Current scenario

Maintaining a healthy diet through the *visesayatana rasi* is essential for preventing a wide range of life style disorders. *Rasi* can be simulated to the balanced diet. A balanced diet can be described as one that includes a variety of foods in appropriate quantities and proportions to sufficiently fulfill calorie, energy, and other nutritional needs, while also allowing for a modest reserve of additional nutrients to help the body cope with brief periods of illness. Studies in the fields of nutrigenomics, epigenomics, and transcriptomics can be used to determine the specific changes in genes that can be brought about by diet. Understanding how genetic makeup reacts to diet in terms of transcription and translation processes can be studied by this²⁷. It is well understood that proper maintenance of *rasi* will make up the healthy protein synthesis in human body.

7. Desha

"Desha" refers to the location that pertains to both the development and dispersion of a substance, as well as its appropriateness concerning a particular place. It indicate the place where the *Ahara Dravya* is cultivated. The quantity of *Dravya* also depend on the place they grow. A habitat is a specific place which denotes variations in qualities of substances caused by variations in the soil and climate. By employing compounds with opposite properties, such as hot substances (*ushna guna dravya*) in marshy land (*anupa desa*) and cold substances (*seeta guna dravya*) in dry climates (*jangala desa*), one can acclimatized to the various types of localities. Example: The *Aushadha Dravya* is more *Gunavan* which collected from Himalaya. *Jangala Desha Mamsa* is *Laghu* as compared with *Anupa Desha*. In *Anupa Desha*- *Ushna Rukshadi Dravya* are beneficial²⁸.

7.1. Current scenario

Wholesomeness of diet depends upon the *Desha*, because if a person is in Rajasthan, he can easily digest a higher amount of *Ghrta* and other *Guru dravya*; but the same amount of *ghrita* is unable to digest by a south Indian. Nowadays immigrants and emigrants are quite common in every country. Allergic manifestation are quite among them due to the sudden intake of non-habituated foods. So they should follow the proper *dinacharya* (daily regimen), *ritu charya* (seasonal regimen) and intake of *asatmya ahara* in less quantity along with *satmya ahara* to attain *oka satmay* (Anything

that, if used, has the potential to have an undesirable or harmful influence on one's health, such as a poisonous or intoxicating substance; if it is consumed gradually over time by a person, it loses its power to have a harmful or detrimental effect and maintains the person's normal health, at which point it becomes *okasatmya* to the user²⁹.

8. Kaala

Qualities of food according to time denotes the *kaala*. It is of two types - *Nithyaga* and *Aavasthika*. *Nithyaga* refers the needs of food in certain time or season. *Kala* is regarded as *Nitayaga* in *Swastha-avastha* (healthy state). *Ahara* should be taken in this situation in accordance with *Dincharya* and *Ritucharya*, which support the ability of body to adjust to the external environment. Different food attains maximum quality in certain season E.g.: Mango in April. *Aavasthika* indicates the food need to be administered according to the condition in an individual; it is considered as *Vyadhi Avastha*. E.g.: Ghee should not be given in acute fever.

8.1. Ahara kaala

When faeces and urine are excreted, Hridaya (stomach, also mind) becomes clear, doshas traverse in their right pathways, belching becomes clear, hunger begins and vata functions properly, digestive fire increases, the body becomes light and capable of perceiving the senses; then food is to be taken, as it is the right time scientifically recommended for food intake³⁰.

8.2. Current scenario

Circadian cycle a natural internal process that regulate the sleep-wake cycle and repeat roughly every 24 hrs. Example Highest level of testosterone secretion is seemed to be 9 AM and bowel movements are suppressed in 10 PM³¹. Based upon this Circadian cycle chronobiology is developed. Chronobiology is defined as the science concerned with the biological mechanism of the diseases according to a time structure and chronopharmacology is the science concerned with the variations in the pharmacological actions of various drugs over a period of time of the day³². Both *Ahara kala* (Proper time for intake of food) and *aushada kaala* (Time for intake of medicines according to different condition) are well elucidated in Ayurvedic classics.

9. Upayogasamstha and upayokhta

Upayogasamstha merely denotes the dietary guidelines. It includes all information pertaining to diet, including when, how, and what to consume. The person who consumes food is upayokhta. *Upayokta* is able to develop wholesomeness by habitual consumption of things, or *Satmya*, which varies from person to person³³.

9.1. Current day Eating Habits in an individual

- Eating without attaining adequate appetite
- Eating soon after a heavy meal
- Eating at the wrong time eg: midnight
- Eating incompatible food combinations, eg: Biryani with curd
- Overeating
- Eating too much heavy food. Heavy food indicate need a long time to digest eg: Parotta prepared with refined wheat flour and trans-fat.
- Eating hurriedly due to busy life
- Consuming food items while emotionally disturbed
- Consuming foods that one cannot digest properly eg: Noodles processed with oils (Poly saturated fatty acids)
- Consuming while constipated
- Drinking chilled or cold water, particularly during meals eg: Drinking soft drinks during eating pizza, burger and pastas etc...
- Drinking too much or no water at all when eating
- Stale and preserved food

Frozen food Too sour, salty, or spicy food frequent intake eg: frequent intake excess spicy food items includes Grilled chicken, Chettinad masala etc.

10. Conclusion

Useful and harmful effects and they are conditioned by one another. One should try to understand them and after understanding, he or she should resort to useful things alone. Neither due to ignorance nor intentionally, one should resort to such food articles or other things (drugs, regimens etc.) as are instantaneously pleasing but harmful in the long run leading to unhappy consequences. The above 8 factors are stated to an individual, so that he/she could maintain the healthy state. To improve health status of public this key concept of *astaahara vidhi visesayatana* should be propagated in different research fields such as Ayurvedic dietetics, Food processing and technology, Ayur nutri genomics, Ayur genomics, Ayur pharmacogenomics, Epigenetics, Chronobiology and Chrono pharmaceuticals.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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