Chapter 3
The Concept of Diet in Ayurveda and Its Implications for the Modern World

Syal Kumar

3.1 Introduction

Biological food is a new subject of discussion among nutritionist globally. It is being widely covered by media and has been taken up as a new avenue of commerce. This puts a very logical question before us that is the biological food can make us healthy or we need healthy eating habits to remain healthy?

Ayurvedic science has been very concerned with food and its role in maintaining health and in treating diseases since before the emergence of modern medicine. The approach of Ayurveda to analyzing food substances is unique. It not only discusses healthy food items but also specifies habits and ways of eating because the last two also promote general well-being. Food, according to Ayurveda, is classified into categories like consistency, taste, properties, quality, compatibility, and incompatibility. Ayurvedic physicians practice with a thorough understanding of the sources, classification, nutritional merits, adverse effects, and therapeutic indications of food.

Substances that constitute food and drugs, living or nonliving, evolved from the same five elements. Ayurvedic theory strongly asserts that the universe is made up of five fundamental elements: prithvi (solid), ap (liquid), tejus (fire), vayu (gas), and akasha (space). Whatever we find in the universe is a combination of these five elements. The human body is also essentially a combination of these five elements. The food available in the universe is also a combination of the five elements, with a predominance of one or another of them.

Diet is an important controlling factor with regard to indigenous microbiotic activities. The gut microflora contains pathogenic, benign, and beneficial microbial species. A predominance of the former can lead to gut upset, which can be both

S. Kumar (✉)
Chair of Complementary and Integrative Medicine,
Department of Traditional Indian Medicine- Ayurveda,
University of Duisburg-Essen, Am Deimelsberg 34a, Essen 45276, Germany
e-mail: s.kumar@kliniken-essen-mitte.de

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acute (e.g., gastroenteritis) and chronic (e.g., inflammatory bowel disease). Foods, that pass through or get close to the gut affect the composition of activities aimed at achieving a more positive metabolism [1].

3.2 Food and Its Healing Process

3.2.1 Food Consistency

In Ayurvedic medicine, food is classified according to the mode of intake as Ashitam (wholesome foods), Peetam (beverages), Leedham (linctus), and Khaditam (masticables) [2]. Each intake method may have its own effects on food based on the mechanism of intake and subsequent production of enzymes. Food that is heavy needs to be chewed well in the mouth. This not only breaks the food down into small particles but also helps in combining the particles with digestive enzymes like linguale lipase, amylase, musin, and others produced by the salivary glands. Thus, here, digestion starts from the mouth itself. If not enough enzymes are combined with such food items, this may lead to indigestion. Indigestion is the major cause of Ama. To avoid such a complication, it is always recommended to consume heavy and sweet foods initially to ensure their digestion by a sufficient amount of enzymes. Light food can be ingested later because it may not require many digestive enzymes.

3.2.2 Classification of Food

The following table gives a detailed explanation of the varieties of food classified according to Ayurveda.

Sanskrit name	Common name	Examples
Sukadhanya	Husked grains	Varieties of rice and wheat
Samidhanya	Pulses	Green gram, black gram, sesame, etc.
Mamsa	Meats	Prasaha (animals that are aggressive around food): cow, goat, horse, etc.
		Bhumisaya (living in burrows): python, mongoose, etc.
		Anupamruga (living in marshes): boar, rhinoceros, etc.
		Varisaya (water dwelling): fish, crab, tortoise, crocodile, etc.
		Ambucari (moving on water): swan, crane, duck, etc.
		Jangalamruga (jungle dweling): deer, wild goat, hare, etc.
		Lavadya (scattering grain while eating): quail, partridge, pheasant, etc.
		Vartakadi (gallinaceous): peacock, bustard, etc.
		Pratuda (eating while pecking): pigeon, parrot

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Sanskrit name	Common name	Examples
Saka	Vegetables	Stems, tubers, leaves, flowers, all legumes, etc.
Phala	Fruits	Grapes, mangoose, coconut, etc.
Harita	Greens	Ginger, garlic, coriander, radish
Madhya	Fermented drinks	Grape, sugarcane, wine, vinegar, etc.
Jala	Water	Rain, river, sea, etc.
Gorasa	Milk and milk products	Milk of various animals, curd, ghee, etc.
Ikshu	Sugar	Sugarcane juice, jaggery, sugar, honey, etc.
Sneha	Fat	Oils, ghee, animal fat and marrow
Kritanna	Liquid, semiliquid, solid	Gruel, soup, boiled rice, preparations of grain, meat, flour, etc.
Aharayoga	Food additives	Oils, pepper, asafoetida, salts, etc.

From the preceding classification it is very clear that the Ayurvedic diet is not vegetarian. It clearly specifies the importance of meat and its types. It promotes a balanced diet of carbohydrates, proteins, and fats from all sources.

3.2.3 The Role of Taste in Ayurveda

According to Indian medicine, tastes influence the human body and mind. The six known tastes are madhura (sweet), amla (sour), lavana (salty), katu (pungent), tikta (bitter), and kashaya (astringent). Most food items will be a mixture of these or be dominated by one. The taste that is dominant will be easily detected by the tongue and will be the primary taste (rasa); other tastes that are latent will be secondary (anurasa).

The three humors of Ayurveda – Vata, Pitta, and Kapha – which are derived from specific combinations of five elements, are also affected by the six tastes. The influence of the five elements in food items is proportional to the influence of the five elements of the particular region. For example, fruits or vegetables growing in specific area rich in certain elements will also be rich in that corresponding element. An apple growing in a water-element-dominated area will also be dominated by the water element. This kind of specific combination of five elements accounts for tastes and their intensity. Being dominated by an element does not mean that the particular item looks like the element; rather, it is dominated by the qualities and functions of that element.

A basic concept in pathology is that a person addicted or prone to seeking out specific tastes will take on the qualities of these elements in his or her body, which will cause in imbalance in the corresponding Dosha, further leading to diseases supported by this particular Dosha. Diabetes, hyperlipidemia, duodenal and gastric ulcers, and others are some of the diseases caused by the improper consumption of tastes.

The six tastes are derived from the special combination of the five elements. The effects of taste on the body depend on the constituent elements that dominate them. The following table gives an overview of the tastes, five elements present in them, and their action on Doshas.

(a) Action of individual tastes

Tastes	Elements	Action on Dosha	General action	Diseases
MADHURA (sweet)	Solid + liquid	Vata ↓ Pitta ↓ Kapha ↑	Builds tissues, prolongs life span; good for skin, hair, and throat. Lubricant, cold and heavy; nourishes and stimulates healing	Obesity, excessive sleep, cough, fever, eye diseases, excessive mucus production
AMLA (sour)	Solid + heat	Vata ↓ Pitta ↑ Kapha ↑	Appetiser, light, hot, and lubricant; induces salivation, energizes the body, strengthens sense organs, stimulates mind, increases peristaltic movement	Promotes thirst, sensitivity in teeth, blood disorders, burning sensation; generates heat in muscles, suppuration in wounds
LAVANA (salt)	Liquid + Heat	Vata ↓ Pitta ↑ Kapha ↑	Improves appetite and digestion, removes stiffness, acts as laxative, opens channels	Vitiates blood, causes skin diseases, internal bleeding, inflammation, impotency, wrinkles in skin, gray hair, baldness
KATU (pungent)	Air + heat	Vata ↑ Pitta ↑ Kapha ↓	Clarifies sense organs; reduces obesity, blocks channels, promotes appetite and sweating; acts against itching and microorganisms	Causes burning sensation, impotency, giddiness, thirst, pain, tremors
TIKTA (bitter)	Air + space	Vata ↑ Pitta ↓ Kapha ↓	Improves digestion, reduces both fat and muscles if taken in excess	Causes dryness of mouth and skin, reduces tissues, obstructs channels, leads to emaciation and psychic disorders
KASHAYA (astringent)	Air + solid	Vata ↑ Pitta ↓ Kapha ↓	Qualities like moping, restraining, compressing, roughness	Causes problems with normal speaking, flatulence, blackish discoloration, obstruction of feces, urine, flatus, semen, spasms, convulsions

(b) Postdigestive taste

After ingestion, foods with different tastes combine with acids and digestive enzymes. Following this interaction, some tastes transform into another taste, which is known as Vipaka. The following table shows the transformation of tastes after digestion.

Taste	Changes	Taste after Digestion
MADHURA (sweet)	No change	MADHURA (sweet)
AMLA (sour)	No change	AMLA (sour)
LAVANA (salt)	Change	MADHURA (sweet)
KATU (pungent)	No change	KATU (pungent)
TIKTA (bitter)	Change	KATU (pungent)
KASHAYA (astringent)	Change	KATU (pungent)

Food that is converted into a specific taste after digestion will influence the Dosha. A person suffering from inflammatory hemorrhoids or intestinal ulcers who ingests a bitter taste will make the condition worse because of the postdigestive effect. Following digestion bitter changes to pungent, adding a burning sensation, bleeding, and inflammation to the aforementioned conditions.

3.3 Food and Its Properties

Each food has its own specific properties that facilitate the food's action. The properties and qualities of food items influence the individual Dosha that makes them balanced or unbalanced. The 20 properties give food its individual qualities. These properties are taken into account when giving advice to patients. The properties are mentioned in the following table [3].

Properties	Action	Properties	Action
Cold (Sita)	Pleasing to mind; relieves fainting, thirst, sweating, and heartburn; causes congestion and blocks channels	Hot (Ushna)	Improves digestion
Lubricant (Snigdha)	Promotes lubrication, softness; improves strength and complexion	Rough (Ruksha)	Causes dryness
Slimy (Picchila)	Strengthens, promotes healing and union, increases kapha	Nonslimy (Visada)	Absorbs moisture
Sharp (Tikshna)	Induces burning sensation, inflammation with discharge	Mild/soft (Mrudu)	Promotes softness on body
Heavy (Guru)	Promotes weight, strength	Light (Laghu)	Promotes lightness on body
Liquid (Drava)	Moistening	Solid (Sandra)	Hardening
Smooth (Slakshna)	Smoothening	Rough (Karkasha)	Causes roughness on body

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Properties	Action	Properties	Action
Fragrant (Sugandha)	Pleasing, appealing, fine	Foul smell (Durgandha)	Unpleasant feeling
Instantly absorbable (Vyavayi)	Quickly absorbing and digested in body	Relaxant (Vikasi)	Muscle relaxant
Fast acting (Asukari)	Fast radiating, acts quickly	Subtle (Sukshma)	Very small in size; can pass through minute channels

3.4 Food and Its Qualities

The seven major dhatus (tissues) are the end product of the food we eat. Our food metabolic system facilitates the proper conversion of food. The first digestion activity is activated in the gastrointestinal tract (GIT) with the help of Jatharagni, which is directly supported by the Dosha-Pachaka Pitta. Jatharagni refers to all the enzyme activity in the GIT that aids in the digestion of food. The digestion of carbohydrates, proteins, and fats is activated by the Jatharagni. Bhootagni is the second metabolic system that helps to digest food at the molecular level (bhoota). The fire element helps in the digestion of micromolecules of food substances. This helps in the proper absorption of particles for microcirculation. The final metabolic function occurs at the tissue/cellular level with the help of dhatwagni. The conversion of transported food particles in the tissues is accomplished by the dhatwagni. Dhatwagni is the metabolic function in tissues and is responsible for anabolic and catabolic activity. All three of the aforementioned functions of digestion facilitate the proper digestion, absorption, and assimilation of food. But certain factors disturb these processes of digestion. In this regard, quality of food plays a major role. Fresh, warm, and properly prepared food helps to regulate the digestive process.

Food stored in freezers and rewarmed is unhealthy. Freezing changes the quality of food and may promote Ama in the body when consumed. Ama, according to Ayurveda, refers to the toxic substances produced in the intestine or in tissues due to improper food or due to weak metabolic activity. Later Ama gets absorbed into the system, developing a very pathophysiological process in the body, leading to chronic and immunosuppressive diseases.

3.5 Compatibility and Incompatibility (Virudhahara)

All particles in the universe are made up of five elements, with one or another predominating. For this reason, substances (Dravya) are also dominated by one of the elements. The same holds true in the case of food or dietary substances.

A special combination of the five elements in food substances accounts for their normal functioning in the body. Combining foods that should not be consumed at the same time will become harmful to the body due to molecular interactions, leading to indigestion and eventual production of Ama. Virudha means anything that aggravates the Doshas but does not expel them from the body [4].

Foods and their combinations that interrupt the metabolism of tissues, inhibit the process of tissue formation, and have properties that are opposite those of tissues are called Virudhahara [5].

Charaka has classified foods that are incompatible with the body according to its cause and origin. They are explained in the table below [6].

Types of incompatibility	
Desha virudha	Food that grows in one place will not be suitable for an individual living in another region, e.g., consumption of dry and sharp substances in dry areas, Unctuous and cold food in marshy areas
Kala virudha	Food consumed contrary to the climate and season, e.g., The context is discussing about incompatible food. These foods are incompatible during summer and winter
Agni virudha	Food that affects the agni, e.g., consumption of heavy food when the power of digestion is mild, light food when digestion is strong
Matra virudha	Food that acts as a toxin when combined in varying quantities, e.g., honey and ghee in equal amounts
Satmya virudha	Foods that are contrary to one's daily diet regimen, e.g., sweet and cold food by someone accustomed to hot and spicy substances
Dosha virudha	Food that is contrary to the Dosha involved
Sanskar virudha	Improper mode of preparation, e.g., baked instead of cooked
Veerya virudha	Combination of different veerya food items, e.g., mixing of cold potency food with warm
Koshta virudha	Food that is contrary to an individual's intestinal nature, e.g., food with a laxative effect in a person with loose stools
Avastha virudha	Food that is contrary to a particular state of health, e.g., consumption of Vata-aggravating food after physical exercise and exertion
Krama virudha	Food that is consumed in the wrong order, e.g., before emptying waste materials, when one is not hungry, or after the onset of hunger
Parihara virudha	Food that is contrary to a disease pathology, e.g., cold foods following consumption of ghee
Upachara virudha	Food combination that is not suitable during particular treatments, e.g., heavy food during panchakarma treatments
Paaka virudha	Food that should not be combined during cooking/improper method of cooking, e.g., undercooked, overcooked, burned during cooking
Samyoga virudha	Improper combination of food items, e.g., sour substances with milk
Hridaya virudha	Foods that do not taste good or are not pleasant to the taste
Sampada virudha	Food that is of poor quality, e.g., not ripened, putrefied
Vidhi virudha	Food that goes against the rules of proper eating, e.g., eating in open, public places

The consumption of incompatible foods is a major cause of many illnesses. Modern food culture involves many combinations of such foods. Some basic incompatible foods are given below.

- The meat of animals of marshy regions is incompatible with Masha (black gram), Ksaudra (honey), Kshira (milk), Virudhaka (germinated grains), and Guda (jaggery). Uncooked meat with bile is not advisable. The meat of crane with wine is not healthy, and when fried with the fat of boar it is very toxic. The meat of black partridge, peacock, iguana lizard, and common quail processed with castor oil is not good for you.
- Fish eaten with milk and milk products causes the production of toxins. All sour substances are incompatible with milk and milk products. Consumption of milk and milk products after eating leafy vegetables should be avoided. One should avoid eating meat with milk or milk products.
- Ghee kept for more than 10 days in a bronze vessel.
- Milk pudding or sweet pudding should not be consumed with sweet liquor or with rice and green gram.
- Mixture of equal quantities of honey, ghee, muscle fat, oil, and water in the combination of two or three of all is incompatible.
- Drinks followed by a solution of corn flour should be avoided. Mustard oil is incompatible with curcuma.

Incompatible food to which one has become accustomed and that is consumed in very small quantities does not produce disease, although it is incompatible with someone who exercises, eats fatty foods, has a strong digestive power, is an adult, or is strong.

Unhealthy things (foods, drinks, activities) that one has become used to from long use should be discontinued gradually. Similarly, healthy things should be adopted gradually with intervals of 1, 2, or 3 days. Discontinuing unhealthy things and indulging in healthy things will suddenly create diseases of the satmya (habitual) and asatmya (nonhabitual).

3.6 General Dietary Guidelines

Type of food	For whom and when
Cold food articles and drinks	Those suffering from heat, thirst, liquor, intoxication, burning sensation, internal bleeding, poisoning, and fainting
Hot food	Sufferers from the vitiation of kapha and vata; following poor vakarma and panchakarma; dry body
Oily food	Those with Vata problems, rough body, overindulgence in physical or sexual activity
Rough food	Those who are obese, have excess kapha in their body, have prameha (diabetes)
Liquid diet	Those who are emaciated, weak, or thirsty

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Type of food	For whom and when
Dry food	Those with fluid accumulation in their body, wounds, prameha (diabetes)
Food consumed once in a day	To enhance digestive power
Mixed with drug	Patients who dislike taking drugs
Small in quantities	Those who have weak digestion, various disorders
Foods containing all tastes	Consuming all tastes helps to maintain the body and to keep healthy

3.7 Method of Food Preparation

Different methods exist for preparing food. They include boiling, frying, extracting, fermenting, flavoring, pickling, and concentrating. The idea of cooking in India developed thousands of years ago under the influence of Ayurveda. The basic idea of cooking was not only to make food tastier but also to convert raw food into an acceptable form for the srotus (microchannels) so that it could be transported to various parts of the body. It is fascinating to see how this process works. The hard materials of our body, like, for example, bones, are developed from soft and fluid food substances absorbed from the intestine. This absorption takes place following digestion and assimilation. The Jataragni, Bhootagni, and Dhatvagni in our bodies play a major role in this process.

The aforementioned methods of food preparation help make different varieties of food palatable to our system. For example, Here it is advised to cook the rice. Not good when baked or fried. Vegetables can be cooked or baked. Those that are cooked are easy to digest. Light vegetables can be baked or steamed. Thus, the cooking methods mentioned previously help in the proper processing of the different varieties of food.

3.8 General Concept of Dining in Ayurveda

3.8.1 Food Eaten at the Right Time and in the Proper Manner

One should try to relax and sit comfortably while eating. It is not good to keep the urine, stool etc. while eating. One should eat at a moderate pace, not too slow or fast. Do not eat if previously eaten food has not yet been digested. Eating small and large portions at irregular intervals disturbs digestion. After eating it is better to move around a bit instead of going straight to bed. This helps to activate enzymes, thereby aiding digestion.

Breakfast, lunch, and dinner are the major meals. Of these, lunch can be quantitatively large compared to dinner, which should be light. During noon hour, our system is active and produces more enzymes in the stomach and intestine, which activates metabolism. According to Ayurvedic principles, the pachaka pitta is active at noon due to the influence of the Sun. This makes the pitta stronger and helps speed up digestion. After a long and hectic day at work, the body is weak and digestive enzymes flow slower into the intestine, even though one might feel hungry. Due to modern work schedules, many people eat their big meal of the day in the evening, which is unhealthy due to the aforementioned factors. As a general rule, half portion the stomach can be consumed with solid food, a quarter with liquid food and the remaining quarter can be keep empty for good digestion.

3.8.2 Concentration and Time-Consuming Meals

One should focus on ones meal while eating, which helps to know the character of the food using the sense organs. Understanding the consistency, smell, and taste of the food one is eating helps in the production of particular enzymes in the stomach and intestines. Receptors in the sense organs help to transmit signals to the brain, which further stimulates the flow of particular enzymes into the stomach and intestines. According to Ayurveda, all three Doshas help in the metabolic process. Jataragni or pachaka pitta is what digests food in the stomach and intestines and refers to the total action of digestive acids and enzymes. The grahani (pylorus) is the organ that holds food for a certain time inside the stomach to facilitate digestion. The strength of the grahani and agni is depended each other. Digestion begins in the mouth and is completed only when the waste materials are expelled.

Food ingested at the proper time is taken into the alimentary tract with the help of Pranavata and mass of food and are Liquid/Fluid in the stomach. This is produced by the help of Kledaka Kapha. Then the Jataragni activated by the samanavata cooks the food. During digestion, food first becomes sweet and produces kapha and then becomes sour and gives rise to pitta. Thereafter it is transported into the large intestine and becomes solid and pungent and gives rise to vata. This process is called avastha paka.

The five characters of agni, bhouma, apya, agneya, vayavya, and nabhasa cook the five fundamental qualities within food. This is called nishtapaka. After digestion, each quality nourishes the equivalent qualities in the body.

The influence of emotions and activities on digestion is not only mentioned in Ayurveda. The results of recent studies in modern medicine support the concept of digestion discussed in Ayurveda. Brain–gut interactions are increasingly being recognized as underlying the pathomechanisms of functional gastrointestinal disorders. Bidirectional communication between the central nervous system (CNS) and the enteric nervous system (ENS) occurs in both health and disease. Various CNS and gut-directed stressors stimulate the brain–gut axis. Processes modulating responsiveness to stressors along the brain–gut axis involve neural pathways and

immunological and endocrinological mechanisms. Disturbances at any level of neural control of the gastrointestinal tract can affect modulation of gastrointestinal motility, secretion, immune functions, and perception and emotional responses to visceral events. ENS function, central processing, and autonomic regulation play an important role in the brain–gut dialog. Stress and emotions may trigger neuroimmune and neuroendocrine reactions via the brain–gut axis. Various non-site-specific neurotransmitters influence gastrointestinal, endocrine, and immune functions, as well as human behavior and emotional states, depending on their location. The physiology of the digestive tract and the subjective experience of symptoms, health behavior, and treatment outcomes are strongly affected by psychosocial factors [7].

3.8.3 Fresh Food

Consumption of fresh food is highly recommended in Ayurveda. Foods that are stale need many enzymes to be digested. For this reason, the chances of getting Ama is high. Reheating of food and oils create more oxidation and produces free radicles due to oxidative stress. When fatty acids are exposed to oxygen in the presence of heat or light, oxidative rancidity occurs, causing the formation of hydroperoxide compounds. These compounds further lead to the production of aldehydes [8]. Oxygenated aldehydes are toxic and cause oxidative stress in cells, which increases the risk of degenerative and atherosclerotic diseases. Lipid oxidation is caused by unsaturated fatty acids rather than saturated ones, which in turn are a good source of free radicals [9].

3.8.4 Too Much Raw Food

There is a general concept in the West that raw food is a good source of vitamins. When food is cooked, many valuable vitamins and minerals are destroyed. According to Ayurveda, metabolic activity in the body is individualized. The three agni – jataragni, bhootagni, and dhatwagni – constitute one's metabolic framework. Based on the three agni strength the food ingested is digested, absorbed, and assimilated. Any abnormalities in any of the three levels of agni functioning will impair the metabolic process. In this situation, even if you eat food rich in vitamins or minerals, it will not be converted into nutrients; instead, it remains a metabolic waste product, which Ayurveda calls Ama. To digest a raw substance, one should have good digestive power (agni). For this reason, cooking is very important because it facilitates the digestion, absorption, and assimilation of food. Even if the vitamin content is lower, it is completely absorbed into the system. For this reason Ayurveda insists on eating warm, cooked food. Such food is easy to digest and helps in secreting enzymes into the stomach and intestine, thereby creating good metabolism.

Raw food is sheeta veerya (cold potency) and generates cold in the system, thereby suppressing enzyme functions in the stomach. Cold substances always try to contract the pores through which enzymes leak into the gastrointestinal tract. For this reason raw food is not often digested completely and leads to the production of metabolic toxins.

3.8.5 Fast Foods

Due to modern life styles, people run out of time, even for eating. Thus, people eat fast food because it can be bought and eaten quickly. Deep frying of potatoes can produce toxins called acrylamide, which is carcinogenic [10]. One study found that the toxin 4-hydroxy-trans-2-nonenal (HNE) was higher in deep-fried foods. When fruits or vegetables are boiled in oil for frying, the oil molecules that penetrate into the fried food are converted into similar molecules like HNE. Once the food is cooled to room temperature, it is converted into toxic HNE [8]. HNE causes a variety of cytotoxic and genotoxic effects [11]. It causes metabolic inhibition and thiol oxidation and generates proarrhythmic changes in cellular excitability [12]. Fast foods also cause the production of free radicals. Free radicals can interact with almost all biomolecules in different ways, altering their natural properties and making them more susceptible to damage. Such oxidative damage affects almost all components of the cellular machinery such as carbohydrates, lipids, proteins, and nucleic acids. Both the reactive oxygen species (ROS) and the end products of their reaction with various biomolecules can cause DNA damage by altering its nitrogenous bases [13, 14].

All the factors discussed previously cause the production of Ama immediately or in the long run. Ama has a broader meaning than indigestion. It affects the three metabolic processes of digestion, absorption, and assimilation. Ama disturbs the three agni – jataragni, bhootagni, and dhatwagni. Abnormal indigestion and intolerances produce a wide range of gut and systemic symptoms, including gas, stomach pain, diarrhea or constipation, severe headaches, severe fatigue, loss of cognitive functions such as concentration, memory, and reasoning, muscle and joint pain, heart palpitations, and a variety of allergies [15–17].

These can be explained by the production of toxic metabolites from gut bacteria as a result of anaerobic digestion of carbohydrates and other foods not absorbed in the small intestine. These metabolites include alcohols, diols such as butan 2,3 diol, ketones, acids, and aldehydes such as methylglyoxal [18, 19]. These toxins induce calcium signals in bacteria and affect their growth, thereby acting to modify the balance of microflora in the gut [20–22].

The idea that toxins are the cause of many diseases was proposed over 100 years ago by one of the founders of immunology – Elie Metchnikoff (1845–1916), working at Institut Pasteur in Paris. Metchnikoff won the Nobel Prize in 1908 for his discovery of macrophages. But his real focus was on the role of gut bacteria in disease. He wrote in his book *The Nature of Man*, which represented a Darwinian

approach to the human body, "The large intestine must be regarded as one of the organs possessed by man and yet harmful to his health and his life. The large intestine is the reservoir of the waste of the digestive processes, and this waste stagnates long enough to putrefy. Bacterial putrefaction is the cause of all disease." Metchnikoff published several papers investigating the effects of putative bacterial toxins such as cresol on health and survival [23].

3.9 Conclusions

Ayurveda addresses not only how to treat disease but also how to prevent it. In both cases, diet plays a major role. Specific diets are recommended based on an individual's heath status. The diet concept in Ayurveda, which refers to diet concept in Ayurveda, is still important in the modern world. The Ayurvedic concept of incompatible foods and the concept of eating, when integrated with modern life, help to resolve many health issues. The aim of an individual diet plan in Ayurveda is to help the body to have a balanced metabolism. India, where Ayurveda originated, is a land of spices. From northern to southern India varieties of spices can be found depending on the climate and geographical features. Cooking with spices according to one's metabolic activity helps the individual to stabilize the Doshas.

Western society is slowly realizing the influence of food on the body. People have become aware of the importance of eating healthy food versus fast food. The proliferation of, for example, bio food markets, bio restaurants, and vegetarian restaurants organic concern towards food is positive. The use of spices and consumption of various herbal teas are becoming more widespread. Many research studies have been conducted to understand the effects of food and spices in, for example, diseases of the gastrointestinal tract, cancer, metabolic diseases, and autoimmune diseases. All these developments show that people are starting to care about their stomach and, hence, their body, mind, and soul.

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