

Chapter 2

The Basic Tenets of Ayurvedic Dietetics and Nutrition

Ram Harsh Singh

2.1 Introduction

Food and diet are the most essential requirements of all living beings. Ayurveda, the ancient life and health science originating from India, considers food in a deeply comprehensive understanding, attaching to it notable emotional and spiritual significance, in addition to its material and biological attributes. According to Ayurveda (CS.Su.28:45) the living human body and the diseases that afflict it are both the products of food [1]. The Vedic texts count food a lifelike phenomenon (*Pranah*). Food is considered one of the three *Upastambhas* of life, meaning that life cannot be sustained without food. *Ahara* is categorized as *Hitahara* (wholesome) and *Ahitahara* (unwholesome). In a similar context, the terms *Pathya* and *Apathya* are also used to denote the acceptability and adoptability of a particular food in a given context. The Ayurvedic texts place great emphasis on the compatibility and incompatibility of certain foods. Caraka describes in detail the 18-fold denominators of *Viruddhahara*, i.e., dietary incompatibility. Ayurveda emphasizes the material quality of food but places even greater emphasis on the selection of food, its processing and cooking, and rules for healthy eating. Thus the Ayurvedic approach to food and dietetics is very different from the conventional Western approach.

Although *Ahara*/food is derived by an individual from the environment, its processing and use intimately depend on the integrity of internal biomechanisms. The sheet anchors in nutritional processes are (1) the integrity of *Agnibala* and (2) *Srotabala*. Unless the *Agni*/biofire system and *Srotamsi*/inner biotransport system are in order, processes of nutrition may not accomplish. Hence it is imperative to discuss *Ahara*, *Agni*, and *Srotas* in a close continuum. *Ahara* is essentially a *Panchabhautic* entity and can be related accordingly to the theories of *Triguna* and *Tridosh*. Likewise, the living human body is also *Panchabhautic*, and accordingly

R.H. Singh (✉)

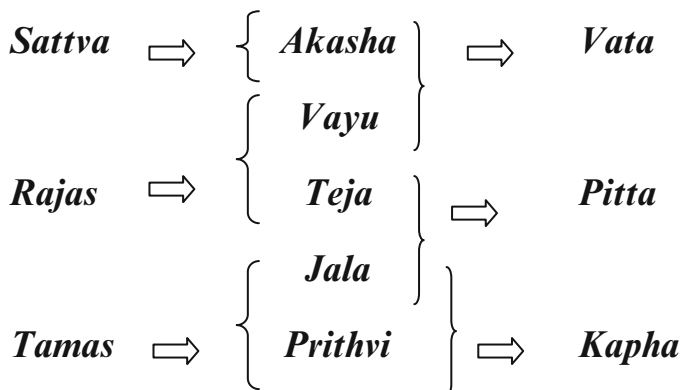
Kayachikitsa, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India
e-mail: rh_singh2001@yahoo.com

its functions are governed according to the laws of *Triguna* and *Tridosh*, both in relation to the states of *Prakriti* and *Vikriti*. The environment around us is also a *Panchabhautic* milieu that manifests in terms of the environmental rhythms of *Adana-visarga kala* and *Sad-ritus* and their chronobiological impacts. Thus Ayurveda urges dietary planning in close consideration of nature and environmental factors on the one hand and the *Prakriti* and *Vikriti* of the individual on the other hand. Over and above the integrity of *Agnibala* and *Srotabala* one should be mindful of maintaining the good nutritional status of an organism.

In addition to food and diet, Ayurveda propounds a separate concept of medicinal dietary supplements in the context of *Rasayana therapy*, which forms one of the eight branches of classical *Astanga Ayurveda* in which a wide range of medicinal and nonmedicinal restorative remedies is described. A *Rasayana* may be in the form of a dietary article, a restorative drug, or a healthy life style. The *Rasayanas* are claimed to be something like nutraceuticals. They improve the nutritional status of an individual and help in procuring the best qualities of *Dhatus*, i.e., bodily cells and tissues, through their positive action at the level of *Rasa*, *Agni*, and *Srotas*. The Ayurvedic texts describe a large number of *Rasayana* remedies that can be used as dietary supplements. The *Rasayanas* not only improve gross nutritional status; it is also claimed that they are immune enhancers and antiaging and biobalancing remedies in Ayurveda that possess a range of specific and nonspecific actions [2].

2.2 Food and Its Material Components

As stated earlier, all articles of food are comprised of five basic elements/*Panchamahabhutas*: (1) *Akasha/ether*, (2) *Vayu/air*, (3) *Teja/fire*, (4) *Jala/water*, and (5) *Prithvi/earth*, which are the five fundamental qualities of matter possibly comprised of distinct categories of quantum clusters in terms of modern physics. The three *Doshas* – *vata-pitta-kapha* – are the biological derivatives of the five *Mahabhutas*, and the *Trigunas* – *sattva-rajas-tamasa* – are the initiating causal qualities responsible for the creation of the material world, including food. The following table approximately depicts the relationships [3].



In accordance with the preceding discussion of the basic nature of food, different articles of food manifest their qualities, potencies, tastes, and nutritional attributes to the body according to the relative preponderance of the *Panchabhautic* composition and related *Trigunatmaka* and *Tridoshic* properties. A balanced diet in Ayurveda is planned in relation to the known *Panchabhautic* composition and *Tridoshic* impacts in the living body. The following table depicts some of these features, which may help in planning a diet [4]:

<i>Sadarasa</i> (tastes)	<i>Panchabhautic</i> composition	Biological impact		
		<i>Kapha</i>	<i>Pitta</i>	<i>Vata</i>
1. <i>Madhura</i> /sweet	<i>Jala</i> + <i>Prithvi</i>	↑↑	↓↓	↓
2. <i>Amla</i> /sour	<i>Prithvi</i> + <i>Agni</i>	↑↑	↑↑	↓
3. <i>Lavana</i> /salt	<i>Agni</i> + <i>Jala</i>	↑↑	↑↑	↓
4. <i>Katu</i> /pungent	<i>Vayu</i> + <i>Agni</i>	↓	↓	↑↑
5. <i>Tikta</i> /bitter	<i>Akash</i> + <i>Vayu</i>	↓	↑↑	↑
6. <i>Kashaya</i> /astringent	<i>Vayu</i> + <i>Prithvi</i>	↓↓	↓	↑

2.2.1 *Gunas/Physical Properties and Their Attributes*

The Ayurvedic classics describe 20 basic properties of physical materials constituting the whole range of living and nonliving objects in this world, such as articles of food, drugs, all vegetation, minerals present in the environment, and bodily cells and tissues. The following 20 *Gunas* form the basic matrix of the transformation of the *panchabhautic* matter into living biologic factors in a living body:

1. <i>Guru</i> /heavy	2. <i>Laghu</i> /light	11. <i>Ghana</i> /dense	12. <i>Drava</i> /liquid
3. <i>Manda</i> /slow	4. <i>Tiksha</i> /sharp	13. <i>Mridu</i> /soft	14. <i>Kathin</i> /hard
5. <i>Sheeta</i> /cold	6. <i>Ushna</i> /hot	15. <i>Sthira</i> /stable	16. <i>Chala</i> /mobile
7. <i>Snigdha</i> /oily	8. <i>Shuska</i> /dry	17. <i>Sukshma</i> /subtle	18. <i>Sthula</i> /gross
9. <i>Picchila</i> /slimy	10. <i>Ruksha</i> /rough	19. <i>Shlakshna</i> /clear	20. <i>Avila</i> /cloudy

These physical properties, as found in various articles of food and drugs, produce similar effects on the body when administered and deplete the opposite properties in accordance with the theory of *Samanya* and *Vishesha*, i.e., homologous versus heterologous, as described in Ayurvedic texts [5].

2.2.2 *Sources of Food Described in Ayurveda*

The Ayurvedic texts describe 12 categories of food sources reflecting the then available varieties of food in historical perspective. A look at this classic information reveals that the whole range of food currently in use today remains the same as was

originally identified during the classical age of Ayurveda. These 12 categories of food are as follows.

1. <i>Shukadhanya</i> (corn)	7. <i>Madya Barga</i> (wines)
2. <i>Shamidhanya</i> (pulses)	8. <i>Ambu Barga</i> (water)
3. <i>Mamsa Barga</i> (meat)	9. <i>Gorasa Barga</i> (milk and milk products)
4. <i>Shaka Barga</i> (vegetables)	10. <i>Ikshu Vikara</i> (sugar cane and related products)
5. <i>Phala Barga</i> (fruits)	11. <i>Kritanna Barga</i> (cooked products)
6. <i>Harita Barga</i> (greens)	12. <i>Aharayoni</i> (food adjuvants)

2.3 Fundaments of Ayurvedic Biology

Thus, it would appear from the preceding descriptions that Ayurveda presents an entirely different version of biology in tune with its three unique features and approaches to studying and practicing biology and medicine, viz. (1) a pronature approach, (2) a holistic approach, and (3) a personalized approach to health care and treatment. In accordance with its theory of *Swabhavoparamvada*, Ayurveda teaches that a living body has powerful self-healing capacities, and whenever a disease afflicts us or a disease-causing factor invades our body, our body immediately starts counteracting the causal factor toward self-healing without waiting for an external aid or medication [6]. Hence a physician should always respect the natural response and should not apply any intervention that might obstruct the ongoing auto-healing process. All external artificial interventions, as far as possible, should be planned in such a way that the organism remains protected by nature. Natural food and diet represent one such attempt, in addition to many other strategies, that an Ayurvedic health provider may recommend. This is called the pronature approach of Ayurveda [7].

In view of the fact that a living mind–body system is a holistic entity, just as a disease entity is a complex holistic phenomenon, all efforts at providing health care and disease management must follow a holistic and inclusive approach, considering the whole organism as a single unit. In addition, disease should be managed in a holistic manner with a view toward overall life style management, dietetics, exercise, psychospiritual support, and medications where needed [8]. A reductionist approach is not welcome at any level in this system.

The third most important feature of Ayurveda is its personalized health care. Ayurveda believes that no two people are truly identical; each individual is unique in his or her biology and ill health. All individuals require individualized care depending on their unique *Prakriti* and *Vikriti* in line with their genomic profiles. Ayurveda classifies humanity into seven *Prakriti* types that are genetically determined in terms of the *Tridosha* theory of Ayurveda. Recent developments in the field of modern pharmacogenomics are now gradually converging toward the ancient Ayurvedic theory of *Dosha prakriti* and its relevance for patterns of disease susceptibility and treatment response [9]. The suitability or unsuitability of a particular food and diet is also governed by the same principle. A dietician should plan her clients' diet taking into consideration *Prakriti*.

2.4 Processing of Food and Its Consumption

The ultimate impact of a food depends not on its material qualities but largely on its processing, i.e., cooking and the discipline of eating. The foremost Ayurvedic classic *Caraka Samhita* (CS.Vi. 1:21) describes the eight principles of *Ahara vidhi*: (1) *Prakriti* (natural quality), (2) *Karana* (preparation), (3) *Samyoga* (combinations), (4) *Rashi* (quantity), (5) *Desha* (habitat and climate), (6) *Kala* (temporal factor), (7) *Upayoga Samstha* (rules of use), and (8) *Upayokta* (the user). Similarly, *Susruta* (SS.U.64:56) describes 12-fold considerations to be followed during the consumption of food. *Caraka* (CS.Su.26:86–87) describes the basic tenets of *Viruddhahara*, or dietetic incompatibility, which constitutes a fundamental consideration in planning a diet that is appropriate for an individual in a given situation. The 18-fold factors of dietetic incompatibility as described by *Caraka* are listed below:

2.5 Dietary Incompatibility (*Viruddhahara*)

1. <i>Desha viruddha</i> /climate	10. <i>Avastha viruddha</i> /patient's state
2. <i>Kala viruddha</i> /season	11. <i>Krama viruddha</i> /order of eating
3. <i>Agni viruddha</i> /digestive power	12. <i>Parihara viruddha</i> /restrictions
4. <i>Matra viruddha</i> /measure	13. <i>Upachara viruddha</i> /observances
5. <i>Satmya viruddha</i> /adaptability	14. <i>Paka viruddha</i> /cooking
6. <i>Dosh viruddha</i> /body humors	15. <i>Samyoga viruddha</i> /combination
7. <i>Samskara viruddha</i> /processing	16. <i>Hridaya viruddha</i> /palatability
8. <i>Virya viruddha</i> /potency	17. <i>Sampata viruddha</i> /rich quality
9. <i>Koshtha viruddha</i> /bowel habits	18. <i>Vidhi viruddha</i> /mealtime rules

In addition to these factors of dietetic incompatibility, *Caraka* describes six important factors in determining the qualitative acceptability of an article of food irrespective of its material composition. These factors determine the *pathya-apathya* nature of food as mentioned below: (1) *Matra* (measure), (2) *Kala* (time), (3) *Kriya* (mode of preparation), (4) *Bhumi* (habitat), (5) *Deha* (body constitution), and (6) *Dosha* (morbid factors).

2.6 Dietary Supplements and Nutraceuticals

As mentioned earlier, besides the core consideration of food and diet, Ayurveda also proposes a comprehensive science of medicinal dietary supplements in the context of *Rasayana Tantra*, which constitutes one of the eight branches of *Astanga Ayurveda* (CS.Ci.1, SS.Ci.27–30). The *Rasayanas* are not merely food supplements in the crude material sense. They are dynamic biofactors responsible for molecular nutrition, immunity enhancement, and longevity promotion. Most *Rasayanas*

produce their nourishing and rejuvenating effect by acting as direct nutrients, by promoting the *Agni Bala*, or by way of *Srotoprasadan*, resulting in an improved nutritional status, further leading to an improved quality of *Dhatus* or body tissues. Although the *Rasayans* are a generic class of restorative and rejuvenative supplements, many *Rasayans* could be tissue and organ specific such as *Medhya Rasayana* for the brain, *Hridya Rasayana* for the heart, *Twacya Rasayana* for the skin, and so on. Similarly, age-specific *Rasayans* can be used to compensate for age-related biolosses as described by Vagbhatt and Sharangdhara, *Balyam-briddhih-Chhabih-Medha-Twak-Dristi-Shukra-Vikaramau*; *Buddhih-Karmendriyam Ceto Jivitam Dashasto hrasat*. On the other hand, as pointed out by Susruta and commentator Dalhana, certain *Rasayanas* are claimed to be disease specific such as *Shilajatu* for *Prameha* and *Tubarak* for *Kustha* [10]. Thus, in considering the Ayurvedic concept of food and nutrition it is necessary to refer to *Rasayanas* and their place as food supplements and as nutraceuticals. The deeper aspects of *Rasayana* therapy and rejuvenation, or *Kayakalpa*, of course, require separate consideration.

2.7 Host Biofactors in Ayurvedic Nutrition

As stated earlier, the processes of nutrition and its ultimate impact in living bodies is not the sole attribute of the physical composition of food items; rather they are largely governed by a range of host biofactors such as the integrity of *Agnibala* and *Srotabala*, i.e., digestive and metabolic fire and the inner transport system of an individual. Besides the three *Doshas* and seven *Dhatus*, the other most important biomechanisms involved in human physiology are the 13 types of *Agnis* located in the gut (*Jatharagni*), in tissues (seven *Dhatvagnis*), and in molecules (five *Bhutagnis*), which are responsible for the entire process of digestion of food and its metabolism. In addition, a living body contains innumerable microchannels called *Srotas* representing a unique quantized inner transport system that is responsible for transporting all biological fluids, nutrients, excretables, impulses, energy, emotions, and thoughts. Ayurveda considers that these channels may be crude as well as subtle, both tangible and intangible, performing their functions in a quantized fashion. There are as many *Srotamsi* in the body as there are biofactors conducting life process – *Yavantah bhavavisheshah tavantevasmin prakara-visheshah*. (CS.Vi.5). This is why the classics proclaim: *Srotomayam hi shariram* (Caraka). The relevance of the *Srotas* system, with the phenomenon of proper nutrition, is obvious from the statement of Caraka (CS. Su.25:45) in defining the *Pathya* or good diet, meaning that *Pathya* (right nutrition) is that which does not create difficulties in transactions of the *Srotas* function in an organism [11].

It cannot be overemphasized that the entire process of *Dhatu Poshan*, or nourishment, operates through the three basic *Nyayas*, or biotransport mechanisms: (1) *Kedarikulya Nyaya* (microcirculation and tissue perfusion), (2) *Khale Kapota Nyaya* (selective uptake of nutrients by corresponding cells and tissues), (3) *Ksiradadhi Nyaya* (assimilation and biotransformation). All three *Nyayas* will

function properly only if there is optimum integrity of *Agnibala* and *Srotabala*. Merely enriching the material components of food is not enough to ensure good nutrition.

Thus, Ayurveda proposes an entirely different approach to food, diet, and nutrition that is in strong contrast to the conventional Western approach. Ayurvedic dietetics places greater emphasis on processing food, its compatibility, and rules of food consumption. It considers the final impact of nutrition in the human body as a holistic attribute of the quality of food and its consumption as well as host factors such as *Agnibala* and *Srotabala*. Nutrition and dietetics should be practiced as a comprehensive science of nutrition encompassing food as well as host factors as discussed previously.

2.8 Conventional Versus Traditional Understanding

Conventional modern medicine suggests that food is essential for sustaining life. Fundamentally, food and nutrition serve three basic functions in the body: (1) as a source of energy for day-to-day bodily functions, (2) as the source of biomaterials for the growth and repair of daily wear and tear, and (3) to assist in certain vital functions of the body. The gross essential components of food are (1) carbohydrates, (2) fat, (3) protein, (4) vitamins, (5) minerals, and (6) water. Carbohydrates and fat provide energy to the body. Proteins are the building blocks for growth and repair, while vitamins and minerals assist in a range of vital functions in the body. Water is an important component of food and is essential for hydration and circulatory functions. Depending on a person's age and a range of functional conditions, different individuals require different proportions of these food components. A proper combination and proportion of food components is called a balanced diet and is formulated by a dietician based on rational principles.

Ayurveda has its own approach to planning a daily diet for an individual. It is not based on conventional chemistry; rather, it is based on classical *Panchmahabhautic* chemistry and *Tridoshic* functions. As such, Ayurveda considers the planning of a biobalancing diet rather than a balanced diet. Besides the physics of *Panch mahabhuta* and biology of *Tridosha*, Ayurveda puts great emphasis on the *Trigunatmaka* consideration of food, stressing especially a *Sattwika* diet, which is preferred for all. A *Sattwika* diet is one that is light and easy to digest and leaves minimal residue after digestion; at the same time, a *Sattwika* diet should contain an adequate amount of nutrients needed for the vital organs of the body, such as the brain, heart, and sense organs, rather than merely nourishing the support structures like bones and muscles. Such a diet, it is claimed, directs the body–mind system toward a positive balance of *Sattwa guna*.

Ayurveda thus adopts a very different approach to the science of food and nutrition as reflected by its fundamental features – a holistic and pronature approach and an emphasis on personalized considerations based on the concept of *Prakriti* and *Vikriti* [11].

2.9 Life-Style Factor in Health and Disease

Ayurveda places great emphasis on the impact of a positive life style on health preservation and the role of a negative life style in the promotion of disease. The whole range of *Swasthavritta*, *Sadvritta*, and *Acara Rasayana* described in the Ayurvedic classics is designed to foster a healthy life style for everyone as a promotive and preventive health care, which is the main focus of Ayurveda. An unhealthy life style leads to *Agnibala Vaisamy*, *Ojabala Dosha*, and *Sroto* distortion, leading in turn to a variety of ailments and immunocompromised states. Similarly, different kinds of tangible and intangible environmental factors, as depicted in Ayurvedic classics in the context of *Ayoga-Atiyoga-Mithyayoga* of *Kala-Buddhi-Indriyarth*, popularly described as *Kala-Parinam*, *Prajnaparadha*, and *Asatmyendriyarth* *Samyoga*, obviously lead to ill health and disease. The three classical categories of aetiological factors have been considered as primary causes of all diseases in Ayurveda; all other tangible causes of disease are secondary to these primary causes [12]. The classical *Hetutraya* represents three principal sources of informational stress constantly bombarding an organism and resulting in stress and disease. This phenomenon simultaneously brings about biological morbidity, e.g., *Agnibala Vaisamy*, *Ojabala Vaisamy*, and *Sroto* distortion, which forms the basic matrix of pathology of all diseases according to Ayurveda.

Environmental and life-style factors also bring about behavioral changes in different individuals, of course depending to some extent on an individual's *Prakriti*. Clearly, the mental state and behavior of individuals greatly reflects the type of food they consume and the kind of habitat they live in. The *Sattvika*, *Rajas*, and *Tamas* food and life style overtly manifest in an individual. Ayurveda rightly proclaims that people and their behavior are the products of their food and life styles [13].

2.10 Conclusions

Ayurveda, despite being one of the oldest systems of life science and health care, possesses a fairly well-developed knowledge base on food science with a range of hitherto unknown dimensions of food science on the one hand and a number of other unique principles and practices on the other, which, if combined with today's nutrition biology, could provide significant benefits to contemporary food science and nutrition [14]. A pronature approach, holistic considerations, and personalized dietary planning constitute the basic features of the Ayurvedic conception of dietetics and nutrition, features that are sorely lacking in modern approaches to nutrition [15].

References

1. Sharma PV (ed) Caraka (700BC) Caraka Samhita. Chaukhamba Orientalia Varanasi
2. Singhal GD et al (eds) Susruta (600BC) Susruta Samhita. Chaukhamba surabharati, Varanasi
3. Singh RH (2005) The holistic principles of ayurvedic medicine. Chaukhamba surabharati, New Delhi
4. Singh RH (2007) Kayachikitsa, chapter 12, vol 1. Chaukhamba surabharati, Varanasi, pp 406–423
5. Singh RH (2004) Swasthavritta vijnana, chapter 7. Chaukhamba surabharati, Varanasi, pp 120–138
6. Singh RH (2009) Body-mind-spirit integrative medicine. Chaukhamba surabharati, Varanasi
7. Singh RH (2009) Srotovijnan of Ayurveda. In: Proceedings of 1st international congress of Ayurveda, Ayurveda Point, Milan, 21–22 Mar 2009
8. Singh RH (2009) Development of research methodology in Ayurveda. In: Mehta PM (ed) Memorial oration. GAU, Jamnagar
9. Valiathan MS (2007) The legacy of susruta, chapters 18–20. Orient Longman, Chennai, pp 84–87
10. Singh RH (2009) The basic tenets of Ayurvedic dietetics. In: 11th international symposium on Ayurveda. The European Academy of Ayurveda, Birstein
11. Lurie DI (2012) Ayurveda and pharmacogenomics, guest editorial. Ann Ayurvedic Med 1(4):126–128
12. Basisht GK (2011) Symbio health – need of the hour. AYU 32(1):6–11
13. Singh RH (2009) Exploring quantum logic in Ayurveda. Ayu Int 30(4):360–368
14. Singh RH (2012) Trends of integrative practice of Ayurvedic medicine. Editorial. Ann Ayurvedic Med 1(4):123–125
15. Singh RH (2007) Panchkarma therapy. Chaukhamba Samskrit series, Varanasi

Ayurvedic Science of Food and Nutrition

Rastogi, S. (Ed.)

2014, XII, 176 p. 6 illus., 3 illus. in color., Hardcover

ISBN: 978-1-4614-9627-4