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REVIEW ARTICLE ON FUNDAMENTAL PRINCIPLES OF AYURVEDA W.S.R.TO THEIR APPLICATION IN PHYSIOLOGY

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ABSTRACT

To every science, it's development, evolvement and success depends on its basic fundamental principles on which it is based. As a eternal science, *Ayurveda* have its own fundamental principles which remained as everlasting truth for last thousands of years. In every aspect of life from creation of living being to its development, transformation, ageing and lastly in deterioration the fundamental principles are applied. It means every physiological function in living being can be correlated with basic principles of *Ayurveda*. The whole concept of *Ayurveda* that may be identification of diseases, its treatment and preventing the recurrence of diseases fully depends on fundamental principles due to which the main aim of *Ayurveda* which is to maintain the health of healthy person and treat the unhealthy person is achieved. On the basis of these principles, the physiological functions in the body like *Chayapachaya*(metabolism), balanced or equilibrium state of *Dosha* (bio energies), *Dhatu* (body tissues), *Mala*

(waste products), *Agni* (digestive fire) and happy with balanced state of *Aatma*(soul), *Indriya*(sense organs) and *Mana*(mind) can be studied. Till now only fundamental principles of *Ayurveda* have been studied and reviewed by researchers but their application in physiological functions of body is to be studied. Hence, here is a study of application of basic principles in physiological functions of body.

KEYWORDS: Ayurveda, Chayapachaya, Dosha, Dhatu, Mala, Agni, Indriya.

INTRODUCTION

Success of any science depends on its fundamental principles. *Siddhanta* is an *Ayurvedic* term which denotes basic or fundamental principles. *Siddhanta* (theory) is the conclusion which is established by scientists after testing in several ways and proving it with reasoning. *Ayurveda* is eternal healing science based on the studies and keen observations of intellectual seers from India. *Ayurveda* is not only a medical science but it is a science of life. *Ayurveda* have the holistic approach towards life. It includes all the aspects related to human life which are *hitakar* (beneficial), *ahitakar* (harmful) *sukhakar* (pleasurable) and *dukhakar* (unpleasable) life.

The main aim and objective of *Ayurveda* is to maintain the healthy state of a normal human being and to treat the disease of patient. It has also given more emphasis for preventive aspects. To achieve the aims and objectives of *Ayurveda* it is based on basic principles which should be studied by everyone to understand the science of *Ayurveda* and itsapplicability.

The basic important fundamental principles of Ayurveda are as follows

- 1) Loka- Purusha Samya or Purushasya lokatulyatvam (Theory of microcosm and macrocasm)
- 2) Sharirasya panchbhautikatvam (Theory of five primordial substances or five elements).
- 3) Shad-dhatvatmak purusha (Theory of composition of human body by six elements).
- 4) Sharirasya Dosha- Dhatu- Mala- mulatvam (Theory of bioenergy- tissues- wastes).
- 5) Roga- arogya Karanam (Cause of disease and health).
- 6) Roga- arogyasya Lakshanam (Features of disease and health).
- 7) Samanya- vishesha- Siddhanta (Principles of homologus and heterologus).
- 8) Dravya-guna-karma Siddhanta (Substance-properties and functions).
- 9) *Dravyasya rasa-virya-vipaka-prabhava Siddhanta* (Energetic principle of taste, active principle, post digestive effect and potency).
- 10) *Karya- Karan Siddhanta* (Principle of cause and effect relationship).

In any medical field though it may be modern or Ayurveda, without studying physiology of human body no one can understand that medical science and can not apply the principles of that science for treatment and health of human being. To gain the deep knowledge everyone must study the physiology of human body regarding that science.

Every basic principle of Ayurveda deals with the physiological actions and functions of body

which are essential to understand the functional diversity within the body.

The brief introduction to the fundamental principles with their application in physiological aspects are as follows

1) Loka- Purusha samya or Purushasya lokatulyatvam (Theory of microcosm and macrocosm)

Purusha means human body and Loka means nature. Tulyatvam means similarity.

Human body and nature is compared in this principle. All principles in macrocosm are present in microcosm, in subtle form. Whichever elements are present in the nature are also present in human body and vice versa. The following two things are understood by this principle.

A) The composition of human body is just like the composition of nature(anatomical similarity).

Universe is developed from five primordial elements which are called as

Panchamahabhuta and human body is also formed from same basic elements.

1. Prithvi (Earth), 2. Aap (water), 3. Teja (fire), 4. Vayu (air), 5. Akash (ether).

These elements exists all over the universe. Hence *Ayurveda* states that each and every element on this earth is formed from these five basic elements.

B) Activities in human body are also similar to that occurring in universe (functional similarity).

Universal activities are regular as long as there is balanced state of these elements but imbalance disturbs all universal functions.

All the activities which covers whole universe are 1. Visarg (union or to give strength) 2. Aadan (to take away or transformation) and 3. Vikshepa (movements) which are regulated by moon & rain, sun and wind respectively.

Moon and rain contain the principle of cohesion which keeps the molecules intactand helps in new growth.

Sun represents the principle of thermogenesis or transformation and wind represents the principle of all types of movements in nature.

The same functions take place in human body in the form of minute energies is known as *Kapha, Pitta* and *Vata* respectively. These three energies maintain the balance of allfunctions in the human body which are called as *Tridosha*.

Activity	Nature	Human Body
1. Union & Structure		
2. Transformation, Digestion	MoonSun Wind	KaphaPitta Vata
3. Movement		

EXAMPLES

- 1. Plants, vegetables and fruits are preserved by principle of cold, cohesion present in rain or moon which occurs due to *Kapha Dosha* which is governed by principle of cohesion.
- 2. Heat or sun rays are essential for ripening of fruits similarly digestion occurs due to *Pitta Dosha* which is governed by heat principle.
- 3. Leaves of tree, tide movements done by air current similarly movements of extremities, circulation, excretion occurs due to *Vata Dosha* which is governed by the principle of propulsion.

2) Sharirasya Panchabhautikatvam (Principle of five elements)

This principle states the importance of five basic primordial elements which are responsible for creation and composition of human body known as *Panchamahabhuta*.

Each and every element on Earth is made up of these five basic elements.

The micro and macro elements in human body are also made up of these elements. Balance and imbalance of the elements in body is responsible for health and disease respectively.

These five basic elements are derived from precursor (*Tanmatras*) by special processcalled as *Bhutantar Anu Pravesh* which occurs as follows:

- 1. Akash (Ether) element is derived from Shabda Tanmatra.
- 2. *Vayu* (Air) element is derived from *Shabda* + *Sparsha Tanmatra*.
- 3. *Teja* (Fire) element is derived from *Shabda+ Sparsha+ Rupa Tanmatra*.
- 4. Aap (Water) element is derived from Shabda+ Sparsha+ Rupa+ Rasa Tanmatra.
- 5. Prithvi (Earth) element is derived from Shabda+ Sparsha+ Rupa+ Rasa+ Gandha Tanmatra.

By this process each onward element has an addition of one property from the previous element.

Mahabhut	Properties
1.Akash(Ether)	Shabda
2.Vayu(Air)	Shabda+ Sparsha
3.Teja(Fire)	Shabda+ Sparsha+ Rupa
4.Aap(Water)	Shabda+ Sparsha+ Rupa+ Rasa
5.Prithvi(Earth)	Shabda+ Sparsha+ Rupa+ Rasa+ Gandha

Each *Mahabhut* has its specific characteristic feature and an addition of one property.

Kharatva (roughness), Dravatva (fluidity), Ushnatva(heat), Chalatva (mobility) and Apratighata (non obstruction) are the specific properties of Prithvi, Aap, Teja, Vayu and Akash respectively.

3) Shad-dhatvatmak Purusha (Theory of composition of human body by six elements)

Purusha means the human body is made up of six elements. Akash, Vayu, Teja, Aap, Prithvi, the five basic elements and sixth Chetana Dhatu (Soul) forms the human body. So human being is called as Shad-dhatvatmak Purusha.

As a predominance of *Mahabhut* in substance they are called as *Parthiva*,

Aapya, Tejasa, Vayaviya and Akashiya. Each substance contains the predominant Mahabhut ingreat quantity and other elements in trace quantities.

Qualities of Panchabhautic elements in human body

1. Parthiva Elements

Bulky(*sthula*), stable(*sthira*), with having structure/dimension (*murtiman*), heavy (*Guru*), rough(*khara*), hard (*kathin*) are qualities of *Parthiva* elements.

Example: Nails, teeth, bones, flesh, skin, hairs etc.

2. Aapya Elements

Whichever liquid(*drava*),fluid(*sar*),slow(*mand*),unctuous(*snigdha*),soft(*mridu*),slimy(*picchil*) are *Aapya* elements.

Example: Ras, Rudhir(blood), Vasa(fats in muscles), Kapha, Pitta, Mutra(urine), Sweda(sweat) etc.

3. Tejasa Elements

Whichever elements are hot(aagneya) and sharp are Tejasa elements.

Example: Pitta, Agni(digestive fire), texture and luster of Twacha(skin), eyes etc.

4. Vayaviya Elements

Whichever responsible for inspiration and expiration, closing and opening of eyes, contraction and relaxation, movements, stimulation, controlling activities and tactile sensations are *Vayaviya* elements.

5. Akashiya Elements

Whichever having space, porosity (vivikta) and macro-micro body channels, ears are

Akashiya elements.

Table showing nature of *Panchamahabhuta* in human body

Sr.No.	Mahabhuta	Nature in human body
1.	Akash	Strotas (channels)
2.	Vayu	All movements
3.	Teja	Agni (digestive fire) and Pitta
4.	Aap	Rakta (blood), Mutra (urine), Sweda (sweat)
5.	Prithvi	Asthi (bones), Danta (teeth), Nakha (nails)

Shabda (sound), *Sparsha* (touch), *Rupa* (vision), *Rasa* (taste), and *Gandha* (odor) are properties of *Aakash*, *Vayu*, *Teja*, *Aap* and *Prithvi* respectively and can be understood by five senses of hearing, touch, vision, taste and smell.

Pathological aspect of Panchamahabhuta

Sr.No.	Mahabhuta	Vriddhi (excess)	Kshaya (deficiency)
1.	Prithvi	Obesity	Weight loss
2.	Aap	Edema	Dehydration
3.	Teja	Acidity	Indigestion
4.	Vayu	Tremors	Paresis
5.	Akash	Osteoporosis	Calcification or fibrosis

4) Sharirasya Dosha- Dhatu- Mala Mulatvam (Theory of bioenergies- tissues- wastes)

As the roots of a tree are important for maintenance, stability and growth of a tree and decay of the roots dries a tree, similarly *Dosha*, *Dhatu* and *Mala* (three bio-energies+seven body tissues+three wastes) are roots of human body. Balanced state of these maintains the health and when vitiated, mechanism of body gets disturbed and diseases starts.

This concept is the base in Ayurveda in general and Sharir Kriya in specific. All thefunctions of human body can be explained in terms of *Dosha- Dhatu- Mala*. The importance of these elements can be understood by studying the functions of *Dosha-Dhatu-Mala*.

Functions of *Dosha* (Bio-energies)

Dosha are structural and functional units of human body.

Vata Dosha carries various types of movements in the body and of the body.

Pitta Dosha carries different types of digestive and metabolic activities.

Kapha Dosha helps in growth, union, stability and composition of body.

Functions of *Dhatu* (Body tissues)

There are seven body tissues (*dhatu*) which gives support and strength to body and maintain

the structure and physiology of body.

- 1. *Rasa dhatu* provides freshness to each body cell which is known as *Prinana* (rehydration).
- 2. *Rakta dhatu* or blood provides proper oxygenation to all body cells which is responsible for preservation of life and known as *Jivana*.
- 3. *Mamsa dhatu* or muscles forms specific shape and size of different body organs and are covered and protected by muscle layers.
- 4. *Meda* or fat maintains the unctuousness and softness of body organs and maintains the lubrication which prevents wear and tear of organs.
- 5. Asthi or bone gives structural base and hold the body organs which is known as *Dharan Karma*.
- 6. *Majja dhatu* (nervous tissue or bone marrow) is filled in deep bone structures which is responsible for movements, communication and intelligence.
- 7. *Shukra dhatu* is responsible for reproduction, strength and immunity.

Functions of Mala (Waste products)

Mutra(urine), *Purisha*(stool) and *Sweda*(sweat) are three waste products which carryaway the unwanted and toxic materials outside the body and keeps the body clean.

Mutra (urine) eliminates the liquid waste products(kleda) from the body.

Purisha(stool) eliminates the solid wastes and toxins from the food which supports to maintain the digestive fire.

Sweda(sweat) eliminates the liquid wastes through the skin hairs which maintain themoisture of skin and healthy lustrous and smooth body hairs.

5) Rog-arogya Karanam (The fundamental cause for disease and health)

Low, perverted or excess contact of Time(*Kala*), Sensory objects(*Artha*) and Activities(*Karma*) with human body causes diseases and proper or optimum contact keeps the body healthy or fit.

- 1. Time factor: if we consider three seasons, low rainfall in rainy season can cause drought which will cause inadequate food supply and will cause malnourishment and malnutrition inhumans. Excessive rainfall ruins the crops and property and can leads to epidemics like jaundice, cholera, typhoid etc. If the rain falls in winter or summer is a perverted contact and can leads to diseases like cough, asthma etc.
- 2. Sensory objects: Deviation from specific normal range of sensory perception can cause

various health hazards. Loud and perverted sound can produce deafness, continuous work with the screen can cause eye fatigue(asthenopia), excessive eating of sweets can leads to obesity, contact of skin with chemicals can cause skin diseases.

3. Activities: Physical(Kayika), verbal(Vachika) and mental(Manasika) are three types of activities. All types of activities should be in balanced nature. Excess, low or perverted activities can cause illness. Example: Physical inactivity can leads to obesity, excess physical activities can leads to *Vata* aggrevation and chronic fatigue syndrome.

6) Roga-arogyasya Lakshanam(Features of health and illness)

Vagbhatacharya and Charkacharya states the same concept of health and illness.

Vagbhatacharya says imbalance of Dosha means disease state and balance of Dosha means health. Aggravation or vitiation of *Dosha's* disturbs the balanced state of *Dhatu* and *Mala* and disease process starts.

Charkacharya used words Sukha (happiness) and Dukha(unhappiness) for health and diseased condition.

7) Samanya-Vishesha Siddhanta (Principle of Homologus and Heterologus)

Homologus properties and functions are responsible for increase in body constituents and heterologus properties and functions are responsible for elimination of body constituents.

Samanya means the substances of same qualities and Vishesha means the substances of opposite qualities. Samanya is responsible for increase which causes the union and Vishesha is responsible for decrease which is a cause of separation. Both Samanya and Vishesha are of three types.:

- 1. Dravya (Substance) Samanya and Vishesha.
- 2. Guna (Quality) Samanya and Vishesha.
- 3. Karma (Action) Samanya and Vishesha.

This principle can be applied in Sharira Kriya for better understanding of properties and functions of body elements. Tridosha's hyper and hypo state can be achieved by consumption of Samanya and Vishesha substances in diet.

For ex.-If we eat too much spicy and oily food, it can provoke *Pitta Dosha*. So we must use foods and drinks which are cold in nature to pacify Pitta.

8) Dravya- Guna- Karma Siddhanta (Substance- Properties and Functions)

Every substance have its specific properties and functions. To study about any substance in details, it is essential to understand its properties and functions. Functional activity of any substance entirely depends upon its properties and properties develops according to composition and structure of a substance.

- 1. Dravya(Substance): The substance which is a intimate cause(Samavayi Karan) of properties and actions is called as *Dravya*. Ex.-Pitta is a dravya as it have properties like Ushna, Tikshna and actions like digestion, vision etc.
- 2. Guna(Properties): The factor which remains intimately contacted with Dravya and is inactive by itself is called as Guna. Ex.-Pitta have Ushna, Tikshna properties but they themselves are inactive.
- 3. Karma(Functions): The action which is responsible for union and separation of molecules of *Dravya* is called as *Karma* and it depends on the properties of *Dravya*. Ex.-Movement action of *Vata Dosha* occurs due to *Laghu* and *Chal* properties.

IMPORTANCE OF PRINCIPLE IN PHYSIOLOGY

- 1. Tridosha, Dhatu and Mala are Dravya.
- 2. We must know the properties of *Tridosha*, *Dhatu* and *Mala* to understand their functions.
- 3. Without studying *Dravya- Guna- Karma*, we can not understand the physiological actions of Tridosha, Dhatu and Mala.

9) Dravyasya Rasa-Virya-Vipak-Prabhava Siddhanta(Energetic principle)

In Ayurvedic pharmacology, energetic principle describes nature, taste, function and potency of any herb or substance. According to energetic principle taste(rasa), active principle(virya), post digestive effect(vipaka) and special potency (prabhava) of any substance or herb is studied to apply that herb in treatment of diseases. We can understand the action of any herb or substance by the energetic principle.

10) Karya-Karana Siddhanta (Principle of cause and effect relationship)

Behind every action or function or to happen any effect(Karya), there always exists some particular cause. Without any reason, no function or anything can occur. In medical field also behind every disease, there resides a particular reason(Karan) which develops the disease. While examining the patient, the physician must have the attempt to find out the causative factor behind the manifestation of disease.

For Example: In general *Pathya*(wholesome) *Ahara*(diet) and *Vihara*(regimen) is responsible for healthy life and *Apathya*(unwholesome) *Ahara* and *Vihara* is responsible to develop diseases.

DISCUSSION

Ayurveda science is holistic science and it's most basic principle is Loka-Purusha Samya which reveals the similarities between nature and human body. As per the second principle of Ayurveda, everything in universe is made up of Panchamahabhuta. So the humanbody is also composed of five basic elements of universe. Tridosha(Vata, Pitta and Kapha) inhuman body are analogous to wind, sun and moon of universe as a transformation of these Panchamahabhutas into biologically effective matters. Dhatu and Mala are also derived from five primordial basic elements. So they are also Panchabhautik.

Health of human being depends on the balanced state of Tridosha, Dhatu and Malawhich are root elements and basic units of body.

To understand the structures and functions of these basic units and how they are modified by different and various factors constitute the study of basic principles of physiology. Without understanding the basic principles of *Ayurveda*, no one can understand the physiological processes of body. If *Dosha*, *Dhatu*, *Mala*, *Agni* get vitiated or aggravated, the normal physiological functions of body get disturbed and correspondence of *Indriya* (Sense organs) with *Atma* (Soul) and *Mana* (Psyche) get disturbed and manifestation of diseases starts.

CONCLUSION

To understand and study about body in natural way and to normalise the functions ofbody by *Ayurvedic* treatment, there is a need to study about fundamental principles of *Ayurveda* and their application in physiology. The complexity or intricacies of body physiology can be better understand by studying basic principles of *Ayurveda* which will helpmankind to live a better life and will also help scientists and researchers to open up the mysteries of human life.

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