

Title: *Kriyakala*' A Fundamental Concept of Ayurveda & Its Contemporary Relevance.

Authors:

Dr. Seema H. Thakare*¹, Dr. Umesh Patil ², Dr. Sumant M. Pande ³

1. Assistant Professor, Department of Rognidan & Vikruti Vigyana, Mahatma Gandhi Ayurved College Hospital & Research Centre, Salod (H), Wardha, Datta Meghe Institute of Higher Education and Research (DU), Wardha-442001, Maharashtra, India.

2. Associate Professor, Department of Rognidan & Vikruti Vigyana, DMM Ayurved Mahavidyalaya & Rugnalaya, Yavatmal, India.

3. Associate Professor, Dept. of Rognidan & Vikruti Vigyan, Mahatma Gandhi Ayurved College Hospital and Research Centre, Salod (H), Wardha, Datta Meghe Institute of Higher Education and Research (DU), Wardha-442001, Maharashtra, India.

***Corresponding author:**

1. Dr. Seema Himmatrao Thakare, Assistant Professor, Department of Rognidan & Vikruti Vigyana, Mahatma Gandhi Ayurved College Hospital & Research Centre, Salod (H), Wardha, Datta Meghe Institute of Higher Education and Research (DU), Wardha-442001, Maharashtra, India.

Abstract:

Ayurveda has given importance to maintain health of each & every individual & curing of the disease. *Dinacharya* (daily health promotional activities) and *Ritucharya* (health promotional activities during specific season), *Aahara* (specific dietary regimen) & curing of diseased person by adopting various therapeutic measures all this objectives helps to maintain health and thus to prevent disease. In Ayurveda deep knowledge is given about both evolution of disease & treatment of disease the best example of this is *Kriyakala*. *Kriyakala* (*Kriya*-treatment & *Kala* - time) means time of treatment or interception in the process of disease manifestation. This

concept can be compared with natural history of disease in modern science. Acharya Sushruta has described six stages of *Kriyakala* viz. *Sanchay*, *Prakop*, *Prasar*, *Sthanasanshraya*, *Vyakti* & *Bheda*. The morbid *dosha* (Humors) & *dushya* (Body elements) are mainly responsible for disease manifestation. If disease gets diagnosed early it helps to cure of disease effectively without much complication & avoid further disease progression. Knowledge of each stage of *kriyakala* helps the physician to understand the underlying pathological condition & implement appropriate treatment.

Keywords: *Bheda*, *Prakop*, *Prasar*, *Sanchaya*, *Sthanasanshraya*, *Vyakti*, natural history of disease.

Introduction:

Our Indian Traditional system of medicine Ayurveda is Science of Life. There is gradual evolution in ancient medical science in which classical treatise based knowledge get replaced by present days textbooks while previous Gurukul based education change to college based educational system.(1) Behind that basic principles of *Ayurveda* remains intact. For the ease of categorization & organization every science is divided into several branches some of them with special expertise. Ayurveda is divided into eight branches with special expertise like *Acharya Sushruta* is known as father of surgery while *Acharya Charaka* is called as Father of Indian Medicine. In spite of being special expertise various Ayurvedic theories, concepts, and principles across many disciplines are described by all of them. Akin to modern system of medicine, Ayurveda has many unique concepts like *Prakruti* (Body constitution), *Tridosha* (Basic three humors), *Dhatu* (body elements) *Shatkriyakal* (stages of disease evolution) etc. The homeostasis of body according to Ayurveda is balanced state of body humors i.e *Tridosha* (*Vata*, *Pitta*, *Kapha*). The abnormalities in these basic humors of body after indulgence in unsuitable food & activities causes abnormalities in *dhatu*s (Body elements) and leads to manifestation of disease. Disease manifestation is a gradual process which occurs through several stages. In Ayurveda disease manifests through six stages collectively term as *Shatkriyakala*. It is nothing but the narration in sequential order of the abnormal changes in *Dosha* (Basic humors), *Dhatu* (body elements) *Agni* (digestive power), *Srotus* (Body channels) etc. which is helpful for both diagnosis & treatment of disease. This unique concept is given by *Acharya Sushruta*. Similar

concept is given by modern science termed as natural history of the diseases. (2)(3) Natural history of the diseases also involves several stages as of Ayurveda. All concepts of Ayurveda can not necessarily compared with the concepts of modern science, but few concepts those are found relevant to the present era can be compared. This paper attempts to unravel few concepts of natural history of the diseases described elsewhere in classical treatises of Ayurveda.

Aim - To study the concept of *Kriyakala* according to Ayurveda perspective & its Contemporary Relevance.

Objectives -

1. To review the concept of *Kriyakala* from different Ayurvedic texts.
2. To study the Importance of each stage of *Kriyakala* in the pathogenesis of disease.
3. To study each stage of *Kriyakala* according to modern concept.

Material & Methodology: Literary study of *Kriyakala* was done from classical texts of Ayurveda like Charak Samhita, Sushrut samhita, Ashtang Hridaya etc. Information related to topic is collected from modern textbooks, Internet, scientific journals etc.

Discussion:

Health: Human beings are having many variations as variations in the universe. So every individual should be considered as a different entity as they differ from another in some extents. Health of an individual is subjected & it is constantly changing under variety of influences so it is important to focus on maintaining and promoting health. In Ayurveda prior importance is given to *Arogya* (Health) as said “*Arogyam Mulamuttamam.*” The principle aim of Ayurveda is “*Swasthasya Swasthyarakshanam*” and “*Aturasya Vikaraprashamanam,*” It explains the significance of maintenance and promotion of health in healthy person along with curing of disease of the diseased person. (4)(5) Along with personal health Ayurveda has also given importance to community health. In order to acquire health, one needs to have a proper balance of structural and physiological factors, metabolic and excretory processes, senses, body tissues, mind etc. Also need to attain a state of self-awareness and contented self. (6) Modern medicine also emphasizes on health of an individual. According to W.H.O, Health is condition of complete

physical, psychological and social well-being and not only an absence of disease or infirmity. It is relative equilibrium of the body form and function. It is an active response of body forces working towards readjustments rather than passive interplay among the body substances and forces impinging upon it. (7) (8)

Diseases manifestation in Ayurveda & Modern Sciences:

The practical Ayurveda depends on the theory of *Tridosha* which form the physiological basis for Ayurveda. The theory of *Tridosha* is developed primarily as a tool to quantify the pathological process and consequently to quantify the requirement of aid interventions in any given condition. *Tridisha* along with *dushya* leads to manifestation of disease. The abnormalities in the basic humors further vitiate body elements and causes disease to occur. According to *Ashtang Hridaya*, a physician must examines and determines the condition of the *dushya* (vitiated tissues & waste product), *desha* (habitat of patient), *bala* (strength), *kala* (season), *anala* (digestive power), *prakriti* (constitution), *vaya* (age), *satva* (mind), *satmya* (accustoms), *aahar* (food & food habitat), and *avastha* (stages of the disease) and then decides the aggravated *dosha* & its appropriate treatment.(9)(10) Akin to Ayurveda, modern science also considered disease as a physiological or psychological dysfunction of body. The process of disease causation involves basic factors of agents, hosts and environment collectively termed as epidemiological triad. Disease may results from the interaction between factors like host (man), agent (causative factors) and environment (extrinsic factors). (11) Epidemic is a sudden spread of the disease within a short period to a large number of people in a given population while ‘Epidemiology’ deals with study and analysis of the distribution patterns, causes and effects of health and disease conditions in defined populations. (12)(13)

Shatkriyakala / Natural history of the diseases:

The concept of *Kriyakala* is based on the doctrine that, disease is a ‘Process’ and not a ‘state’. It describes the general pathogenesis of disease. *Kriyakala* is also known as ‘*Chikitasavasar*’ (Time of treatment or interception in the process of disease manifestation). The process of disease manifestation involves six different stages collectively called *Shatkriyakala*. It includes namely *Sanchaya*, *Prakopa*, *Prasara*, *Sthansamshraya*, *Vyaktavastha* and *Bhedavastha*. (14) This concept is interrelated with natural history of disease given in modern medicine. Different

phases of *Shatkriyakala* in correlation with natural history of disease are described in Table 1. Every disease has its own distinct history and it is not necessarily the similar in all individuals. Both Pre-pathogenesis and Pathogenesis stages of disease are included in natural history of a disease. (15) The knowledge of *Shatkriyakala* is very important from the perspective of early diagnosis and prevention of disease and especially from disease healing. The diseased can be cured with less effort if diagnosed early. Early detection or further progression of disease may be counter by the precise knowledge of each stage of *kriyakala*. As from the table no.1 it clears that there is similarity between stages of *kriyakala* and modern disease cycle or natural history of diseases.

Table.1 (Comparison between stages of *Shatkriyakala* and natural history of diseases)

Concept in Ayurveda	Equivalent English term	Concepts in epidemiology
<i>Sanchaya</i> and <i>Prakopa</i>	Stage of accumulation & Stage of aggravation	Stage of susceptibility
<i>Prasara</i> and <i>Sthānasamshraya</i>	Stage of spreading & Stage of localization	Stage of pre-symptomatic disease
<i>Vyakti</i>	Stage of Manifestation	Stage of clinical disease
<i>Bhēda</i>	Phase of differentiation /complications	Stage of diminished capacity

Description of stages of *Shatkriyakala* & its correlation with modern Epidemiological concepts:

The six stages of *Kriyakala* described by *Acharya Sushruta* are as follows;

1. *Sanchaya* (Stage of Accumulation): It is first stage of *kriyakala* and it starts with humoral imbalance. Factors like poor & inappropriate diet, faulty dietary habits, negative thoughts and feelings, changing life style contributing for humoral imbalance. In this humours get accumulated in their respective sites as *vata* in *pakvashaya* (Intestine), *Pitta* in *amashaya* etc. The symptoms in this stage are normally vague and ill-defined & body tries to conquer this mild oddity by its own defenses. (16)(17)

2. *Prakop* (Stage of aggravation): It is a second stage of *kriyakala* in which humors get vitiated and aggravated. The aggravated humours start developing their respective signs of illness. (18)

The above two stages of *kriyakala* namely *Sanchaya* and *Prakopa* can be compared with “Pre-pathogenesis stage” which refers to the preliminary period to the onset of disease. Pre-pathogenesis stage is also called as stage of Susceptibility in modern science. In this stage, the infectious agents find portal of entry by which it enters into host so that host become susceptible due to the presence of certain risk factors. On gaining entry into host, the organism must reach the appropriate tissue in body of host; find most ideal conditions for its growth, development and survival for the disease to occur. (19)

3. *Prasar* (Stage of spreading):

Prasara is the third stage of *Kriyakala* in which vitiated humors starts dissemination to different parts of body. The disturbed humors produces disease either in a whole body or in a specific area where opportunity occurs but if the humors are not vitiated up to their full strength they become *lina* (deep in a particular site) and stays in the *rogamarga* (Pathway of disease) without showing any response & just waiting for an opportunity to gain strength by consumption of etiological factors. So the symptoms can occurs sporadically and indifferent areas. In this stage the disease is difficult to diagnose by both the traditional & western methods.

4. *Sthanasanshraya* (Stage of localization):

The fourth stage of *Shatkriyakala* in which actual disease manifestation occurs is *Sthanasanshraya*. In this stage vitiated humors gets localized at a particular organ or organ system and starts developing prodromal features of disease. (20)

The third and fourth stage of *kriyakala* can be compared with pre-symptomatic stage of disease. In this stage disease manifestation starts but no signs and symptoms are evident. The infection becomes apparent after specific time interval known as Incubation period of the disease. It is the time period between invasion of the infective agent and manifestation of the first sign or symptom of the disease. Non-infectious disease takes time ranging from months to year

to develop a disease and is called latent period of the disease. In this stage, pathological changes are below the level of clinical horizon, disease is developed but host remains asymptomatic. (21)

5. *Vyakti* (Stage of Manifestation):

Well manifested entity of disease is *Vyakti* and is the fifth stage of *Shatkriyakala*. Disease gets clearly manifested in this stage. Specific localized and systemic features start developing which indicative of further disease progression so that disease becomes evident and clinically recognizable. This stage is comparable with Clinical stage of disease in modern science. At this phase the disease is usually diagnosed and treated by the physicians. Depending upon host, agent & environmental factors the disease both advanced slowly or rapidly and may range in degree of severity. (22)

6. *Bheda* (Stage of differentiation / complication):

Bheda is last phase of *kriyakala* in which disease progress in most advanced stages. As compared to previous stages of disease manifestation this stage seems very risky and complicated. *Bheda* stage resembles with stage of diminished capacity. It may represent the convalescent period or may causes residual disability. Convalescent period represents the phase where disease completed its clinical stage but the individual still not return to normal state. Disease causing temporary or prolonged complication may results in residual disability. This phase may end up with recovery, disability or even death. (22)

***Shatkriyakala* & Its Treatment:**

1. *Sanchaya* (First stage of *kriyakala*)

Pathology becomes stronger when *dosha* proceeds further stage so elimination of *dosha* in stage of accumulation arrests them to attain successive stage. They should be beaten without opposing (interfering with) one another. Treatment in this stage be like,

- *Rutucharyapalan* (follow Seasonal regimen).
- *Dincharyapalan* (follow Daily regimen).
- Indulgence in opposite quality dietetics & activities.
- Avoidance of *dosha* exciting cause (dietary or behavioral regimen).

2. *Prakop* (Second stage of *kriyakala*)

Dosha prakop is the further aggravation of doshas than *chayaavstha*. Treatment in this stage depends on the severity of *doshas*.

- *Alpadosha* (mild increase) – *shaman* (palliative)
- *Madhyadosha* (moderate increase) – *langhan* (fasting) & *pachan* (digestion)
- *Bahudosha* (severe increase) – *shodhan* (elimination)
- Avoidance *dosha* exciting cause (dietary or behavioral regimen).
- Symptomatic treatment.

3. *Prasar* (Third stage of *kriyakala*) (23)

In this stage aggravated *doshas* starts moving to other dosha sites. The aggravated *dosha* which spread to the site of other *dosha* should be treated like the site of original *dosha*. The classified management of *doshas* in this stage as follows;

- *Vata* located in the site of *pitta* should be treated like *pitta*.
- *Pitta* located in the site of *kapha* should be treated like *kapha*.
- *Kapha* located in the site of *vata* should be treated like *vata*.
- Avoidance of etiological factor & symptomatic treatment.

4. *Sthanasanshraya* (fourth stage of *kriyakala*) (24)

Treatment protocol in this stage must include,

- *Nidanparivarjan* (Avoidance of *dosha* exciting cause i.e. dietary or behavioral regimen).
- Treatment according to site (*sthanaanusar chikitsa*)
- Treatment according to *dosha –dushya*.
- Treatment opposite of disease (*Samprapti Vighatana*).

5. *Vyakti* (fifth stage of *kriyakala*):

This stage facilitates the physician to analysis, diagnosis & designs the line of treatment of underlying disease. *Vyadhi Pratyanka chikitsa* (Specific treatment of disease) is given in this stage. (25)

- According to dosha:
 - i. *Doshashodhan* (Elimination of vitiated *dosha*)
 - ii. *Dosha shaman* (Palliative treatment)
 - iii. *Swasthanaanayan* (Bringing *doshas* to normal state)
- According to *dushya*:
 - i. If Increased *dushya* – then decreased them (*Vrudhadushya- kshina*)
 - ii. If decreased *dushya* – then increased them (*Kshinadushya – vruddhi*)
- *Aam* – *Aampachan*.(digestion of *aam*)
- *Strotas* – *strotoshuddhi* (*Shaman/ Shodhan*)
- *Krimi*/pus/renal stone removal.

6. *Bheda* (Sixth stage of *kriyakala*):

In this stage treatment is given according to specific sign & symptoms of the disease (*dosha pratyanka & vyadhi pratyanka chikitsa*). (25)

Importance of *Shatkriyakala* & Natural history of diseases:

The concept of *Shatkriyakala* is most important from both the perspective of public health intervention and disease control stratagem. It provides a great opportunity at each and every stage to arrest disease progression by using proper measures. *Kriyakala* shows similarity to disease cycle or natural history of disease described in modern medicine. Manifestation of disease starts with vitiation of body humors. In first and second stage of *kriyakala* body humors starts accumulation followed by aggravation. Elimination of body humors in stage of accumulation arrests them to attain successive stage. In these two stages equilibrium of humors can be corrected by using dietary & seasonal regimen as preventive measures. Modern medicine also highlights the primordial and primary prevention at the stage of susceptibility which halt the disease progress. The primary prevention according to both concepts may be achieved by measures designed to promote general health & well-being of an individual, and also to improve the quality of life of people. Proper *Dincahrya*, *Rutucharya*, *Aahar*, proper *Vyayam* are may advised to patients to improve their health.

In third & fourth stage of *kriyakala* aggravated humors starts dispersing in the body & get settled at a particular organ or organ system. The prodromal features start appearing in fourth

stage which helps to diagnose the disease. In this stage the disease is neither clearly manifests nor completely buried. This creates lot of confusion before a physician owing to its very nature. These two phases can be correlated with pre-symptomatic stage in which it is difficult to identify the disease. The specific interventions in this stage are early diagnosis & proper treatment which helps to stop the disease process & to maintain health.

Recognizable sign & symptoms appear in fifth stage of *kriyakala* which shows similarity with the clinical stage. Early diagnosis and treatment are the modes of interventions in this stage as it is marked with clinical signs and symptoms. For the treatment of diseases *Shaman* (alleviation) and *Sodhana* (purification) modalities described in Ayurveda are mostly preferred. The last stage of *kriyakala* is *bheda* in which disease gets severe, chronic or becomes incurable which can be correlated with late pathogenesis stage. The modes of intervention suggested at this stage are mostly designed to reduce or to limit the impairments & disabilities, to minimize suffering caused by the disease & to promote the patient adjustments to irremediable conditions.

Conclusion:

Kriyakala is unique concept of Ayurveda which is elaborated by *Aacharya Sushruta*. This gives idea about the journey of upcoming diseases. The knowledge of each stage along with its preventive & curative measures helps to arrest the disease early without causing much complication. In today's era various new diseases are emerging out due to change in dietary habits & sedentary life style. So the primary aim of physician is to diagnose the disease as early as possible & to limit the spread of the diseases which can be achieved by the knowledge of *kriyakala*.

Acknowledgement:

The author is thankful to Dr. Prashil Jumade and all other peoples who knowingly and unknowingly help in writing manuscript.

Conflict Of Interest:

No conflict of interest.

Funding Support:

No any source of funding.

References:

1. Janmejaya S. Advancements in Indian System of Medicine (ISM) informatics: an overview. Global Journal of Research on Medicinal Plants & Indigenous Medicine. 2013 Jul 1;2(7):546.
2. Vithalani LV, Sakharkar BV, Dalvi SA. Shatkriyakala with special reference to homeostasis and pathogenesis-a brief review.
3. Sathavane GV, Gabhane SM, Thakre S, Zade DA, Bhokardankar P, Shukla S. Review Article on Etiopathogenesis (Samprapti) of Tamak Shwasa WSR Kriyakala. Indian Journal of Forensic Medicine & Toxicology. 2020 Oct 29;14(4):6552-9.
4. Manohar PR. Concept of Health in Āyurveda. In An Integrated View of Health and Well-being 2013 (pp. 59-68). Springer, Dordrecht.
5. Acharya Trikamji J. Charak Samhita of Agnivesa, Varanasi; Chaukhamba Surbharati Prakashan; 2005. p.187.
6. Verotta L, Macchi MP, Venkatasubramanian P, editors. Connecting Indian wisdom and western science: Plant usage for nutrition and health. CRC Press; 2015 Apr 24.
7. Morandi A, Tosto C, Roberti di Sarsina P, Dalla Libera D. Salutogenesis and Ayurveda: indications for public health management. EPMA Journal. 2011 Dec;2(4):459-65.
8. Samal J. The concept of public health in Ayurveda. International Ayurvedic Medical Journal. 2013;1(2):1-5.
9. Yadav SS, Goswami PK. A review on sutrasthana of vagbhata's samhita is best among Ayurvedic classics (Sutrasthane tu Vagbhate). Ayurpharm Int J Ayur Alli Sci. 2014;3(9):248-53.
10. Paradkar HS, editor. Ashtang Hridaya of Vagbhata, Reprint Edition. Ch. 12, Ver. 67.68. Varanasi: Chowkhamba Krishnadas Academy; 2006., Sutra Stahna; Doshabhediya; p. 207.

11. Pandey J, Tiwari D, Manohar Ram D, Jaiswal T, Kumar A. Tenets of epidemiology (Janpadodhwansa) in Ayurveda. IJAR. 2020;6(10):82-4.
12. Thakare SH, Jumade PP. Janapadodhwamsa in Ayurveda & its comparison with recent COVID-19 pandemic. Int. J. Res. Pharm. Sci.. 2020:297-303.
13. Available at: <https://en.wikipedia.org/wiki/Epidemiology>
14. Sathavane GV, Gabhane SM, Thakre S, Zade DA, Bhokardankar P, Shukla S. Review Article on Etiopathogenesis (Samprapti) of Tamak Shwasa WSR Kriyakala. Indian Journal of Forensic Medicine & Toxicology. 2020 Oct 29;14(4):6552-9.
15. Samal J. Public Health importance of Shatkriyakala in relation to natural history of disease. Int J Res Ayurveda Pharm 2013; 4:468-71.
16. Soni RK, Srivastava G. Review on Shatkriyakala–A way to know and treat diseases. Journal of Ayurveda and Integrated Medical Sciences. 2016 Oct 31;1(03):87-93.
17. Deshpande A & Khedikar S, Determination of Pakwashaya - A anatomical organ described in Ayurvedic literature; Journal of Indian System of Medicine, 2017, Vol-5, 175-178p.
18. Sharma PV. Sushrut Samhita of Acharya Sushruta Vol. I. Varanasi; Chaukhamba Vishvabharati Oriental Publishers; Reprint 2004. Sutrasthana 21/18. 230p.
19. K. Park. Parks, Textbook of Preventive & Social Medicine, 21st edition, Jabalpur; M/s Banarsidas Bhanot; 2011, 94p.
20. Sharma PV. Sushrut Samhita of Acharya Sushruta Vol. I. Varanasi; Chaukhamba Vishvabharati Oriental Publishers; Reprint 2004. Sutrasthana 21/33. 235p.
- 21 K. Park. Parks, Textbook of Preventive & Social Medicine, 21st edition, Jabalpur; M/s Banarsidas Bhanot; 2011, 94 & 95 p.
- 22 K. Park. Parks Textbook of Preventive & Social Medicine, 21st edition, Jabalpur; M/s Banarsidas Bhanot; 2011, 34 & 40p.

23. Acharya Trikamji J, Sushrut Samhita of Acharya Sushruta with the Nibandhasangraha Commentary of Sri Dalhanacharya. Varanasi ;Chaukhamba Sanskrit Sansthan; Reprint 2017.p.105.

24. Acharya Trikamji J, Sushrut Samhita of Acharya Sushruta with the Nibandhasangraha Commentary of Sri Dalhanacharya. Varanasi; Chaukhamba Sanskrit Sansthan; Reprint 2017.p.105, 106.

25. Acharya Trikamji J, Sushrut Samhita of Acharya Sushruta with the Nibandhasangraha Commentary of Sri Dalhanacharya. Varanasi; Chaukhamba Sanskrit Sansthan; Reprint 2017.p.106