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KALA IN AYURVEDA: A COMPREHENSIVE REVIEW OF ITS PHYSIOLOGICAL AND THERAPEUTIC SIGNIFICANCE

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ABSTRACT

Background: *Kala (*time) is an important concept in *Ayurveda* that explains continuous change and temporal variations affecting health, physiology and disease. **Objective:** To review the Ayurvedic concept of *Kala* and its influence on *Dosha, Agni, Bala, Ritu* and *Vaya*. **Materials and Methods:** Relevant descriptions from classical Ayurvedic texts were reviewed to understand the concept, dimensions and functional significance of *Kala*, with emphasis on its temporal variations in *Dosha, Agni, Bala, Ritu* and *Vaya*. **Results:** *Ayurveda* describes *Kala* as a continuous principle of change and transformation. Temporal variations in *Dosha* are described according to *Vaya, Ahoratra, Bhukta Kala* and *Ritu*. Seasonal variations are also observed in *Dosha, Agni* and *Bala,* demonstrating the influence of temporal changes on physiological functions. *Aushadha Sevana Kala* further reflects the practical application of time in *Ayurvedic* therapeutics. **Conclusion:** Kala provides a comprehensive temporal framework for understanding physiological variation and adaptation in Ayurveda. Its multidimensional description highlights the importance of time in maintaining health and understanding changes in physiological functions.

KEYWORDS: *Kala, Ayurveda, Dosha, Agni, Bala, Ritu, Vaya*

INTRODUCTION

Ayurveda considers health as a dynamic state that is influenced not only by the internal condition of the body but also by various environmental and temporal factors. *Kala* is therefore an important consideration in understanding the maintenance of health and the development of disease. The influence of *Kala* is reflected throughout *Ayurvedic* literature in relation to daily routine, seasonal changes, *Dosha, Agni, Bala* and disease manifestation.

The primary objectives of *Ayurveda* are *Swasthasya Swasthya Rakshanam* (preservation of health in a healthy individual) and *Aturasya Vikara Prashamanam.*[1] (alleviation of disorders in a diseased individual)**.** *Kala* (time) plays an important role in achieving both these objectives. For the preservation of health, Ayurveda advocates *Dinacharya* (daily regimen) **an**d *Ritucharya* (seasonal regimen)**,** both of which are based on the appropriate consideration of time and season. Following a suitable diet and lifestyle according to the requirements of each season is described as beneficial for maintaining *Bala* (strength) and promoting overall well-being. Thus, daily and seasonal regimens are closely influenced by *Kala* (time)**.**

In the management of disease, *Kala* (time) also has an important role in determining the chronicity and progression of disorders**, s**electing an appropriate therapeutic approach, and determining the appropriate time for the collection, preparation, preservation and administration of medicines. Therefore, *Kala* (time) may be considered an important factor influencing both the preventive and therapeutic aspects of Ayurvedic healthcare**.**

Kala is described as *Parinama* (transformation/change). The term *Kala* refers to that which undergoes continuous change through divisions such as *Ritu* (season), *Masa* (month), *Ayana* (solstitial period), and *Varsha* (year). Thus, *Kala* can be understood as the principle of continuous temporal change and transformation.[2]

Although *Ayurveda* describes the influence of *Kala* on various physiological and pathological processes, these time-dependent concepts have not been sufficiently explored through the contemporary framework of chronobiology. Understanding these concepts in relation to biological rhythmicity may provide a broader perspective on the temporal regulation of health and disease. Therefore, this review attempts to explore the Ayurvedic concept of *Kala* and its possible relationship with biological rhythms, with emphasis on *Dosha, Agni, Bala, Dinacharya* and *Ritucharya.*

1. Concept of Kala in Ayurveda

Ayurveda describes *Kala* as one of the nine types of *Dravya* (substances), along with the five *Mahabhuta, Atma, Manas* and *Disha.* These nine *Dravya* are further classified as ***Chetan* (sentient) and *Achetan* (insentient)**. Thus, *Kala* is recognized as one of the fundamental categories of *Dravya* in Ayurvedic philosophy, providing an important conceptual basis for understanding temporal changes and their effects on the living body.[3]

1.1 Definition of Kala

Kala is described in Ayurveda as *Svayambhu* (self-existent) and devoid of *Utpatti* (beginning), *Madhya* (middle) and *Anta* (end)**.** Thus, it is regarded as an eternal principle that is not produced by any other entity. *Kala* is dynamic in nature and does not remain *sthira* even for a very small fraction of time. Its classical *Nirukti* further emphasizes this dynamic nature, with *Kala* being interpreted as that which continuously moves, serves as a basis for counting and measurement, and brings about the progression and culmination of events in living beings.[4]

1.2 Classification and Dimensions of Kala

Ayurveda considers *Kala* through different temporal divisions such as *Ritu* (season), *Masa* (month), *Ayana* (solstitial period) and *Varsha* (year)**.** These divisions provide a framework for understanding temporal variations in the environment and their corresponding effects on the human body. The changing characteristics of *Kala* are particularly evident through variations such as *Shita Kala* (cold period) and *Ushna Kala* (hot period)**,** which influence physiological processes and adaptation.

1.3 Importance of Kala

The functional significance of *Kala* is evident from its influence on various processes of life. The ***Vipannata* (decrease or deterioration) and *Sampannata* (increase or development)** of Rasa and Rasa-bearing substances, as well as ***Jivana* (life) and *Marana* (death)**, are described as being dependent upon *Kala.* Thus, *Kala* provides an important temporal basis for understanding progressive changes occurring in living beings.

Although *Kala* is considered a single fundamental principle, its effects may vary according to its particular temporal characteristics. Ayurveda therefore recognizes different manifestations such as *Shita* and *Ushna Kala* and explains their effects through appropriate or inappropriate

temporal association (***Samyoga* and *Mithya Yoga)***. This indicates that the effects of *Kala* are not uniform but vary according to the specific temporal conditions.

Overall, *Kala* in Ayurveda represents more than chronological time; it signifies a **continuous principle of change, progression and transformation** that influences living beings and their interaction with the environment. This provides the conceptual foundation for understanding variations in physiology, adaptation, health and disease across different periods of time.

2. Kala as a Determinant of Physiological Functions

In Ayurveda, *Kala* is an important determinant of physiological variation in the human body. Body functions are not considered static but undergo changes according to daily, seasonal and agerelated temporal factors. These variations are reflected in *Dosha*, *Agni*, *Bala*, *Rasa* and *Dhatu*, as well as in the physiological characteristics of different stages of life. Thus, the influence of *Kala* extends beyond its chronological aspect and is reflected in the continuous adaptation of physiological functions to changing temporal conditions.

2.1 Kala and Temporal Regulation of Dosha

Ayurveda describes a distinct temporal pattern in the predominance of *Dosha*. Although *Vata*, *Pitta* and *Kapha* are continuously present and active throughout the body, their relative predominance varies according to the stage of life (*Vaya*), different periods of the day and night (*Ahoratra*), and the stages of digestion following food intake (*Bhukta)*. Thus, *Kala* is described as an important factor governing the temporal variation of *Dosha*.

Temporal dimension	***Kapha***		***Pitta***	***Vata***
Vaya	***Bala* / early life**		***Yauvana* / middle age**	***Vriddhavastha* / old age**
Day	6 AM–10 AM		10AM - 2pm	2 pm -6pm
Night	6 PM–10 PM		10 PM–2 AM	2 AM–6 AM
Bhukta kala	Initial stage digestion	of	Middle digestion	Later stage of digestion

This demonstrates that the predominance of *Dosha* follows a recurring temporal pattern across different dimensions of *Kala*.[5]

2.2 Seasonal Variation of Dosha

According to the seasonal variations described in Ayurveda, *Dosha* undergo specific patterns of *Sanchaya* (accumulation), *Prakopa* (aggravation) and *Prashama* (alleviation) in different *Ritu*. The classical description can be summarized as follows.[6]

Dosha	***Sanchaya* (Accumulation)**	***Prakopa* (Aggravation)**	***Prashama* (Alleviation)**
Vata	*Grishma*	*Varsha*	*Sharad*
Pitta	*Varsha*	*Sarad*	*Hemant*
Kapha	*Shishira*	*Vasanta*	*Grishma*

Thus, Ayurveda describes the variation in *Dosha* through multiple dimensions of *Kala*. Their predominance is observed according to different stages of life (*Vaya),* different periods of the day and night (*Ahoratra*), different stages of digestion following food intake (*Bhukta Kala),* and seasonal changes (*Ritu)*. These recurring patterns indicate that *Dosha* are not considered physiologically static but exhibit temporal variations in accordance with changing internal and external conditions. This multidimensional description of Dosha variation provides an important basis for understanding the role of *Kala* in maintaining physiological equilibrium.

2.3 Temporal Variations in *Agni* Across Different Ritus

Seasonal variations in *Agni* and digestive capacity are described as an important physiological response to changes in the environment. During *Hemanta Ritu***,** *Agni* remains strongest, and a similar state of enhanced *Agni* is observed during *Shishira Ritu.* In contrast, *Agni* gradually becomes diminished during *Vasanta* and *Grishma***,** while *Varsha Ritu* is characterized by weakened digestive capacity and impaired digestion. During *Sharad Ritu***,** the accumulation and aggravation of *Pitta* may further contribute to the diminished state of *Agni*. Thus, the seasonal fluctuations in *Agni* reflect the body's adaptation to changing environmental conditions and may influence its digestive and metabolic functions.[7]

2.4 Kala and *Bala:* Seasonal and Temporal Variations

The *Kala* (time factor) plays a significant role in determining the seasonal variation of *Bala* through the cyclical progression of *Adana* and *Visarga Kala***.** *Bala* is comparatively diminished at the beginning of *Visarga Kala* (*Varsha Ritu*) and the end of *Adana Kala*

*(Grishma Ritu)***.** As *Kala* progresses towards the middle of these periods, represented by ***Sharad* and *Vasanta Ritu***, *Bala* attains a moderate state. With the further progression of *Kala, Bala* reaches its maximum at the end of *Visarga Kala (Hemanta Ritu)* and the beginning of *Adana Kala (Shishira Ritu)***.** Thus, the cyclical movement of *Kala* through *Adana* and *Visarga* periods produces a characteristic temporal variation in *Bala* across the seasons.[8]

3. Clinical Relevance of *Kala: Aushadha Sevana Kala*

Ayurveda emphasizes that the therapeutic effect of a medicine is influenced not only by its properties and dosage but also by the time of administration *(Aushadha Sevana Kala).* Classical Ayurvedic texts describe specific timings for administration of medicines in relation to food intake, digestion, *Dosha* and the clinical condition of the patient. *Ashtanga Hridaya* describes ten *Aushadha Sevana Kala*, namely *Ananna* (on an empty stomach), *Pragbhakta* (before food), *Madhyabhakta* (during food), *Adhobhakta* (after food), *Antarabhakta* (between two morsels), *Grasa* (with each morsel), *Muhur Muhu* (repeatedly at short intervals), *Sambhojya* (mixed with food), *Samudga* (administered before and after food), and *Nishakala* (at bedtime).[9]

The selection of *Aushadha Sevana Kala* is described according to the predominant *Dosha*, the site or function of affected *Vayu*, strength of the patient and disease, and the clinical presentation. *Ananna Kala* is advised particularly in *Kapha* aggravation and in strong patients or strong disease conditions. *Pragbhakta* administration is indicated in disorders involving *Apana Vayu*, whereas *Madhyabhakta* is preferred when *Samana Vayu* is affected. *Adhobhakta* administration is described in relation to the disturbance of *Vyana* and *Udana Vayu*, while administration at the end of a morsel is associated with disorders of *Prana Vayu*. Repeated administration *(Muhur Muhu)* is described in conditions such as poisoning, vomiting, hiccup, excessive thirst, dyspnoea and cough.

Medicines mixed with food are indicated in *Aruchi*, while *Samudga* administration and bedtime administration are recommended in specific clinical conditions.[9]

Thus, *Aushadha Sevana Kala* demonstrates the clinical application of *Kala* in Ayurveda, wherein the timing of medicine administration is selected according to food intake, *Dosha, Agni*, disease condition and the strength of the patient.

DISCUSSION

The present review shows that *Kala* is an important factor influencing physiological changes, health and disease in Ayurveda. Its influence is described at different levels, including *Ahoratra, Vaya, Bhukta Kala* and *Ritu*. This indicates that body functions are not constant but change according to different temporal conditions. The variations described in *Dosha, Agni* and *Bala* further support the importance of *Kala* in maintaining physiological balance.

The variation of *Dosha* according to age, day and night, digestion and season shows that their predominance changes with time. Similarly, the seasonal pattern of *Sanchaya, Prakopa* and *Prashama* indicates that Dosha changes follow a recurring pattern. Thus, *Kala* can be understood as an important factor through which the body adjusts to changes occurring within the body as well as in the surrounding environment.

The changes observed in *Agni* and *Bala* also show the influence of seasonal *Kala* on physiological functions. *Agni* is described as stronger during *Hemanta* and *Shishira* and comparatively weaker during other seasons. Similarly, *Bala* varies according to the progression of *Adana* and *Visarga Kala*. These observations suggest that digestive capacity and physical strength also undergo seasonal changes and are influenced by the temporal environment.

The concept of *Aushadha Sevana Kala* further shows the clinical importance of *Kala.* Ayurveda considers the appropriate time of medicine administration according to food intake, *Dosha, Vayu,* disease condition and the strength of the patient. Thus, the effect of treatment is considered not only in relation to the medicine used but also to the time at which it is administered.

The Ayurvedic description of daily, seasonal, age-related and digestion-related variations can also be considered in relation to the modern understanding of biological rhythms. These Ayurvedic concepts may be related to the modern understanding of biological rhythms. However, further research is needed to understand how these classical descriptions correspond to measurable changes in physiological functions.

CONCLUSION

Kala in Ayurveda represents the continuous and systematic progression of change that influences both the individual and the environment. Its description provides a time-based

understanding of health, physiological adaptation and disease management. The Ayurvedic concepts of *Kala* offer a classical framework for understanding how biological functions are influenced by temporal changes. Thus, *Kala* may be considered a fundamental principle linking time with physiological regulation, adaptation and health, providing a valuable basis for further research integrating Ayurvedic concepts with contemporary chronobiology.

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