



LITERARY STUDY OF 'KALA' MENTIONED IN BRIHATRAYS WITH SPECIAL REFERENCE TO SWASTHA

DESHPANDE K^{1*} AND GUPTA P²

- 1:** Associate Professor, Department of Kriya Sharir, Dr. D. Y. Patil College of Ayurved & Research Centre, Dr. D. Y. Patil Vidyapeeth, (Deemed to be University), Pimpri, Pune – Maharashtra, India-411018
- 2:** PG Scholar, Department of Kriya Sharir, Dr. D. Y. Patil College of Ayurved & Research Centre, Dr. D. Y. Patil Vidyapeeth, (Deemed to be University), Pimpri, Pune – Maharashtra, India-411018

***Corresponding Author: Dr. Krishna Deshpande: E Mail: ydkrishdeshpande@gmail.com**

Received 24th Oct. 2023; Revised 25th Nov. 2023; Accepted 25th March 2024; Available online 1st Dec. 2024

<https://doi.org/10.31032/IJBPAS/2024/13.12.8549>

ABSTRACT

Background: - To study and put into practice the notion of 'Kala' given in Bruhatrayi, i.e. maintaining proper times in many parts of life according to Ayurveda in order to maintain health.

Methodology: - The current study was planned and carried out through the scientific development of the notion of Kala - Amurta Karan Dravya, which is a basic ingredient of matter responsible for the creation, existence, and annihilation of the entire cosmos. Ayurveda describes Kala in a variety of ways, including Dinacharya, Ritucharya, Aushadha Sevana Kala, Kriya kala, Arista Kala, and others. The conceptual study of Kala in all aspects of Ayurveda is critical for the prevention and cure of disease, as well as the maintenance of a healthy state, which are the science's ultimate goals.

The following 'Kala' references were compiled from each Adhyaya / Sthana of Brihatrayi and grouped in distinct regions of Swasthavritta:

1. Nityaga Kala
2. Avasthika kala

3. Dinacharya
4. Rutucharya
5. Aahara and Agni
6. Garbha-Garbhini Vidnyana
7. Marma Vidnyana
8. Miscellaneous References

Result: Many references suggesting the word or meaning Kala were obtained from numerous categories such as Dinacharya, Marma Vidnyana, or Aahara

Conclusion: Maintaining Kala, or proper timing in all aspects of life, aids in achieving and maintaining health.

Keywords: Kala, Nityaga, Avasthika, Dinacharya, Ritucharya, Swastha

INTRODUCTION

Life is nothing but the duration of living organism and duration is nothing but the Kaala. Kaala is the topmost influencing evaluate of the universe. Kaala is the almighty influencing each and everything, giving birth to prosperous histories and leading to their end, too! Kala is a basic ingredient of matter that is responsible for the universe's origin, essence, and annihilation [1]. Kala generates genesis, regeneration, and degeneration by combining, avoiding, and separating numerous components. The conceptual study of Kaala in every aspect of Ayurveda is important for prevention and cure of diseased state as well as maintenance of healthy state which are the ultimate aims of the science [2]. Ayurveda describes Kala in a variety of ways, including Dinacharya, Rutucharya, Aushadha Sevana Kala, Kriya kala, Arista Kala, and others [3]. The conceptual study of Kala in all aspects of

Ayurveda is critical for the prevention and cure of disease, as well as the maintenance of a healthy state, which are the science's ultimate goals [4]. Today's way of life is full of inconsistencies. Irregular eating times, irregular sleep times, and so on have become a part of the habit, which eventually proves to be a causative component in the majority of ailments [5]. As a result, it is critical to research and apply the right timing, i.e. Kala, for the maintenance of health.

MATERIAL AND METHOD

References were gathered from each Adhyaya / Sthana of Charak Samhita, Sushruta Samhita, and Ashtanga Hrudya indicating the various facets of Kala concerned Swasthavritta.

Collected references were collated and grouped in the following Swasthavritta areas for better application:

1. Nityaga Kala

2. Avasthika Kala
3. Dinacharya
4. Rutucharya
5. Aahara
6. Garbha-Garbhini Vidnyana

articulate any of the short vowels, such as Akshinimesha according to Sushruta, and the time it takes to blink one eye. That is, Matra according to Vagbhata. The subdivisions of eternal time from the minutes Nimesha to entire Yuga are always circling like a wheel and this perpetual rotation is called as 'Kala-Chakra'.

REVIEW OF LITERATURE

1. **Nityaga Kala:** The sun's unusual motions divide eternal time, which is measured in years, into ever-smaller subdivisions. The smallest division is the time it takes to

Table 1: Nityaga Kala According to Sushrut and Vagbhat

Sushruta	Vagbhata
Samaya = 1 Akshinimesha	Samaya = 1 Matra
15 Akshinimesha = 1 kashtha	15 Matra = 1 Kashtha
30 Kashtha = 1 Kala	30 Kashtha = 1 Kala
20 1/10 Kaala = 1 Muhurta	20 1/10 Kaala = 1 Nadika
30 Muhurta = 1 Day and night	2 Nadika = 1 Muhurta
15Days-Night=1Paksha [fortnight]	3/4 Muhutra = 1 Yama [Prahara]
2Paksha = 1 Masa [month]	4 Yama = 1 day / Night
12aasa = 1 samvastara [year]	15 days/Night = 1 Paksha [fortnight]
2Maasa = 1 Rutu [season]	2Paksha = 1 Maasa [month]
3Rutu = 1 Ayana [solistics]	2Maasa = 1 Rutu [season]
2Ayana = 1 Varsha [year]	3 Rutu = 1 Ayana
5 Varsha = 1 Yuga	2 Ayana = 1 Varsha

2. **Avasthik Kala:** - It is the duration of time since birth in Swasthavritta.

It covers age phases (6).

कथस्तुत्रवळधंबारं -, मध्यं, जीणासमनत॥...

Table 2: Stages of Birth According To Sushrut and Charak

S N.0	Stage of Age	Sushruta	Charaka
1	Bala	1-15 years	1-30 years
		Ksheerapa= 0-1 yr.	Immature=upto 16 yrs.
		Ksheerannada=1-2yr	Mature= up to 30 yrs.
		Annada= 3-15 yrs.	
2	Madhya	16-70 years	Up to 60 years
		Vruddhi = 16-20yrs	
		Yauvana = 20-30yrs	
		Sampurnata=30-40yrs	
3	Vruddha/ Jeerna	Hani = 40-70yrs	
		Above 70 years	Up to 100 years

STAGES OF AGE AND LAKSHANA:-

1. Young Age - With Kapha dominance, many organs of the body are not properly developed, mental abilities are immature, and there is tenderness and incomplete strength [7].
2. Middle Age - Well exhibited strength, vitality, manliness and valour, power of understanding, relation, memorization, and all Dhatus attributes with Pitta domination [8].
3. Old age - With the dominance of Vata, old age causes a diminution of Dhatus, the strength of sense organs, vigor, manliness, understanding power, and so on [9].

Dinacharya: - The Dinacharya Order is referenced in Brihatrayi. A. H.Su.2, Ch. Su.5, Su.Chi.2

1. Charak samhita:-

Anjana, Dhumapana, Anutaila Nasya, Dantadhavana, Jivha Nirlekhana, Tambula Bhakshana, Taila Gandusha, Shira-Sneha dharana, Karna Poorana, Abhyanga, Udvartana, Bath, Vastra, Gandha, mala, Ratna Dharana, Shaving, use of foot wears umbrella, stick, Following of rituals.

2. Sushrutsamhita:-

Dantadhavana, Jivhanirlekhana, Mukha-Netra Prakshalana, Netranjana, Tambul, Shirapratipurana (Chakrataila),

Karnapratipurana, Abhyanga, Sneha parishek, Avagaha, Vyayam, Utsadana, Snana, Lepa-Vastra-Ratna dharana, Aahara, use of footwear, stick walking, Aatapa Agni sevana, Samvahana, Nidra.

3. Ashtang Hruday:-

Waking up at Brahma Muhurta, Cleansing of bowels, Dantadhavana, Anjana, Nasya, Gandush, Doom, Tambul Bhakshana, Abhyanga, Vyayam, Udvartana, Snan, Bhojana, Sadvrutta, Mantra, Aushadhi, Ratna, dharana, use of Umbrella and shoes, Getting up from bed during Brahma muhurta, Protects life.

Anjana –

- I. Rasanjana should be taken every fifth or eighth day to cleanse the eyes of pollutants.
 - II. Do not apply strong Anjana [collyrium] to the eyes during the day. It should only be applied at night.
 - III. Sauvranjana should be used on a daily basis.
 - IV. Srotonjana should be avoided immediately after eating or bathing, when tired from vomiting/riding, and while sleeping late.
1. **Dhumapana [smoking Kaala]:** It must be done three times, with three puffs each time. Prayogika Dhoom should be done twice a day. Once a day, Snaihika Dhoom. Vairachanik

- Dhoom - three times every day.
- 2. Anu taila Nasya should be taken on alternate days, three times a day for seven days.
- 3. Brushing your teeth twice a day is recommended.
- 4. One who applies oil to his head on a daily basis does not experience migraines, baldness, or hair graying [10].
- 5. **Abhyanga:** - A daily oil massage prevents the onset of old age [11].
- 6. **Vyayam [exercise]:** It should be done at half strength during the cold season and Vasanta [spring].
- 7. Sexual intercourse should not be performed at noon, in the morning, or at midnight, or on auspicious days [12].
- 8. Sadhya should be performed twice a day, with a haircut, shave, and nail cut every two weeks.
- 9. **Sleep:** The individual should sleep at the appropriate hour each night as much as possible. If he was up during the night, he should sleep for half that time the next morning before taking food domination of Doshas according to day [13].

Table 3: Dosha and Their Dominance

Sr.No	Dosha	Time of dominance
1	Kapha	Morning and beginning of the night
2	Pitta	Afternoon and middle of the night
3	Vata	Evening and End of Night.

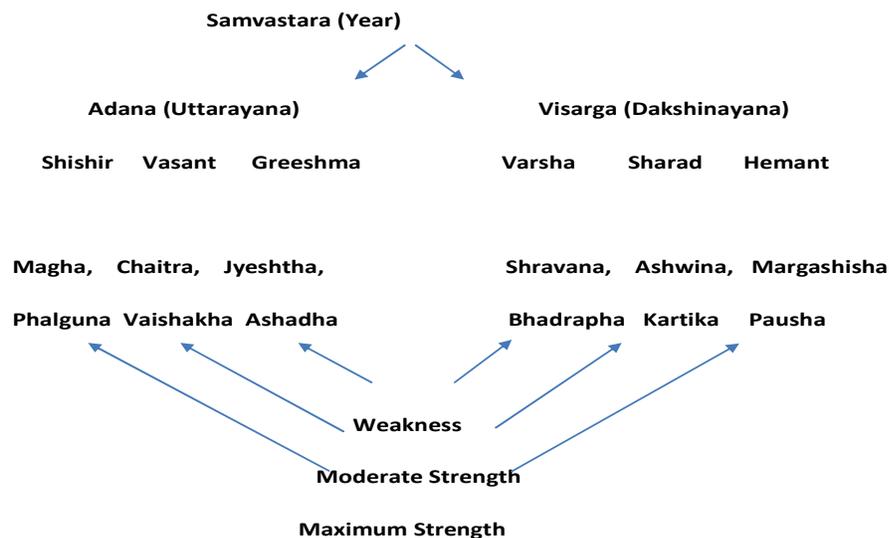


Figure 1: Ritucharya

RELATION BETWEEN RUTU AND RASOTPATTI:

The Ritus should be performed in the following order: Ch. Su.6, Su.Su.6, and A.H.Su.3.

1. Hemanta: -

- I. Aahara- Because the digestive power is powerful, an unctuous, sour, and salty diet, including meats from various aquatic and marshy animals, should be consumed in large quantities. Following this, wine, vinegar, and honey should be consumed. Products made from milk or sugarcane juice.
- II. Vihara- Massage, anointing, head oil, warm chambers, sun, and heated rooms above and underground are all part of the Vihara experience. - Clothes, blankets, and the like should be heavy and warm. Sleeping with a well-developed woman is ideal.

2. **Shishir:**-Regimen is almost like Hemanta.

3. Vasanta: -

- I. Aahara is primarily composed of barley and wheat. Sharia and Kapinjala meat with wine and vinegar.
- II. Vihara- Perform regular physical exercise, anointing, smoking, gargles, collyrium, and so on. Vamana should be provided.

4. Greeshma: -

- I. Aahara refers to sweet, chilly, liquid, and fatty foods and beverages. Meat from wild animals and birds. Rice with ghee and milk. A small amount of wine.
- II. Sleep during the day at the Vihara. Sandal paste applied to the body. Live in frigid climates.

5. Varsha:-

- I. Aahara- Honey-based foods and beverages as digestive power are diminished. A cooler diet that emphasizes Amla, Lavan, and fatty foods. Wild meats and soups with old barley, wheat, and rice.
- II. Vihara- Regular body massage and anointing, bath, aroma, light clean clothes, and so on. Basti should be administered.

6. Sharad:-

- I. Aahara-Sweet / bitter, light dietary items, barley, wheat, rice + Lava, titara meat
- II. Vihara- Raktamokshana and Vihara should be supplied. Day sleep should be avoided.

Ritusamdhi: - - The 7 days at the end and beginning of Ritu. During this time, the preceding season's regimen should be gradually phased out, and the following season's regimen should be gradually implemented [13].

Ritucharya:

Table 4: Dosha and Their Chaaya, Prakop and Prasham Ritu

Sr.No	Dosha	Chaaya	Prakopa	Prashama
1	Vata	Greeshma	Varsha	Sharad
2	Pitta	Varsha	Sharad	Hemanta
3	Kapha	Shishir	Vasanta	Greeshma

Ritu and times of meal:-

1. Cold months (short Day) – Morning.
2. Seasons with long days – Afternoon.
3. Seasons when days and nights are equal - Middle part of the day.

Aahara & Agni: If Agni is extinguished, one dies; if Agni is operating properly, one lives a long and disease-free life.

1. **Sama Agni** - Food digestion at the correct moment.
2. **Vishama Agni** - Impaired digestion.
3. **Tikshna Agni** - Digestion of even large meals in a short period of time.
4. **Manda Agni** - Long-term digestion of even moderate meals. People with Sama Agni should eat twice a day, whereas those with Daurbalya, or weak Agni, should eat once a day.

Aahara Kaala :- (A.H.Su.8/55)

When the mind is pure, sense organs are clear, and the body is light, the optimal time for eating is after the expulsion of feces and urine, when Doshas are traveling in their normal courses and digestive activity is keen [14]. When belching is pure, hunger is present, and flatus moves downward

readily. Food should be consumed just after the previous meal has been digested. Food should not be consumed at inconvenient times because it promotes health.

Rules of diet: - Aahara Vidhi Visheshayanani (Ch.Vi.1/12)

1. Kaala is a significant Aahara Vidhi Visheshayatana that encompasses the stage of disease as well as an individual's state.
2. Warm food digests quickly. As a result, the food should be heated.
3. Food should not be consumed in haste because it enters the wrong passage, becomes depressed, and does not enter the stomach properly.
4. Food should not be consumed slowly because it promotes digestive irregularities [15].
5. Sneezing should be avoided throughout meals.
6. Sweet dishes should be served first, then sour and salty meals, and last pungent and other dishes.
7. Roasted grain flour devoid of ghee and sugar should not be consumed at

night, after meals, or more than twice daily.

8. In terms of drinking water: - Before eating - The person is malnourished. The person becomes stout after the meal. A person remains normal before, during, and after a meal [16].
9. A correct amount of food should constantly be consumed.
10. A self-controlled man who eats nutritious food lives for 100 years.

1. Digestion :-

The time of digestion is an important aspect in the transformation (digestion, absorption, and metabolism) of food since it determines the maturity of the process. Food consumed in the morning should be digested in the evening, while food consumed in the evening should be digested in the morning [17].

2. Rasashesha Ajeerna:-

During the day, the heart blossoms like a lotus, and all channels remain clear as a result. During the night, the heart fades, channels are blocked, and the stomach is constricted, reducing digestive ability [18]. Thus, even if the day meal is unpleasant, the night meal is not bothersome; nevertheless, if food consumed at night is not digested, a person should not eat the next day.

3. Dhatu-Utpatti: -

The Rasa is successively converted into each of the six Dhatus of the body and remains in

each shape for 3015 kalas. Rasa is therefore changed to Shukra/Aartava in 18,090 kalas, or one month [19].

4. Garbha Garbhini Vidnyana:-

- I. **Menstruation:** - Menstruation begins in the 12th year, flowing in every month until the 50th year, when it disappears with the sensible disintegration of the body [20]. Conduct to be observed during the first three days: Should maintain Brahmacharya, shall not cry, bathe, anoint her body, spare her nail, run, or engage in loud and excessive laughter, etc.
- II. **Age to get married:** - A 25-year-old guy and a 16-year-old lady are completely developed and should marry.
- III. **Ritu Kaala:** - It is an important element that caused the pregnancy. - Ritu Kaala / state of fertility are the period following menstruation when fresh blood production begins. - It is a 12-day span [21].
- IV. **Conduct regarding intercourse concerning menstruation:** - Intercourse should only take place during Ritu Kaala. If you want to have a boy, go to the wife's bed on the 4th, 6th, 8th, 10th, or 12th night after her menstruation, and if you want a girl, go on the 5th, 7th, 9th, or 11th night after her menstruation.

V. **Signs of conception:** –Sings of recent conception include salivation, heaviness, prostration, drowsiness, horripilation, and so on.

VI. **Development of foetus:** - The action of association of the soul with five Mahabhootas takes place in a very short time. According to Dhanvantari, all organs in a foetus develop simultaneously [22].

5. **Symptoms experienced during pregnancy:-**

I. Fourth month - Excessive heaviness in the body. Different desires due to the Daurhudini state.

II. Fifth month - Grows excessively thinner.

The sixth month - Loses strength and complexion.

Seventh month – Becomes exceeding deficient in all aspects.

III. Eighth month - Wavering feeling of joy and sorrow.

Table 5: Masanumasika Vruddhi [Development of fetus according to month]

Month	Charaka	Sushruta	Vagbhata
1	An intimate mixture of Mahabhootas	Kaala	Kaala
2	Pinda-Peshi-Arbuda	Pinda-Peshi-Arbuda	Pinda-Peshi-Arbuda
3	Senses &limbs along with organs	Five lump-like protubers	Senses &limbs understand Sukha-Dukha
4	Stability	Development of heart & desires	Limbs &organs
5	Flesh & Blood	Mind	Chetana
6	Strength & complexion	Buddhi	Tendons, veins, hair, colour, strength
7	All round development	Organs &limbs	All parts of the body
8	Formation of Ojas & transfer from mother to child	Formation of Ojas, unstable.	Formation of Ojas & transfer from mother to child
9	Ready for Delivery	Ready for Delivery	Ready for Delivery

Table 6: Monthly regimens for a pregnant woman: - (Ch. Sha.8, Su. Sha.10

Month	Charaka	Sushruta
First	Cold milk in adequate quantity. - Wholesome food in the morning and evening	Especially sweet, cool and fluid food products
Second	Milk boiled with Madhura gana drugs. - Wholesome food	Especially sweet, cool and fluid food products
Third	Milk with honey and ghee	Especially Sweet, Cool, Fluid food products Shali rice + Milk
Fourth	Milk with butter (12 gm.).	Shali rice + curd.
Fifth	Milk with ghee	Shali rice + Milk
Sixth	Ghee was impregnated with Madhura gana drugs.	Shali rice + ghee.
Seventh	Ghee impregnated with Madhura gana drugs	Ghee prepared with the decoction of Pruthakparnyadi gana
Eighth	Milk and Yavagu are added with ghee.	Yavgu/meat soup + ghee, administration of Basti
Nineth	Basti and administration of Yonipichu. Entrance to the maternity home on auspicious dates.	Entrance to the maternity home on auspicious dates.

Regimen for a newborn baby:-

- I. First- Ananta + honey + ghee Three times a day
- II. Second and Third- Ghee prepared with Lakshmana three times
- III. Fourth day onwards - Fresh butter before breast milk two times a day
- IV. Sixth day - Child should be kept awake at night
- V. 10th day- Name giving (Namakarna Vidhi) Afterwards Examination of life span
- VI. 5th month- Sitting on the ground
- VII. 6th month- Giving food
- VIII. 6th, 7th, 8th month- Karnavedhana
- IX. Breast milk: - The milk in the breasts of a newly parturient woman sets in 3 or 4 days after parturition.
- X. Signs indicating the time of delivery
- XI. Exhaustion of the limbs,
- XII. Feeling of depression in the face,
- XIII. Looseness in the eyes,
- XIV. Feeling as if something is coming down from the pelvis,
- XV. Onset of the show from the genital tract etc.

DISCUSSION: -

The investigation was completed using a comprehensive approach to the concept of 'Kaala,' the basic constituent. Its spiritual purpose is to spread the theory. The goal here is to illuminate the practical

application of the same theory that is hidden in the compendium. The following things should be considered in order to unravel the hypothesis.

LITERARY REVIEW

1. The first direct references to the word 'Kaala' in relation to Swasthavritta were gathered from all three Samhita.
2. The references were organized to cover the most important features of Swasthavritta.
3. To prevent redundancy, references closely related to the main concept of its practical application were chosen. (For example, Dinacharya, Rutucharya, Masanumasika Vruddhi, Garbha-Garbhini Kaala, and so on.)
4. Observed 'Kaala' peculiarities include-
5. Nityaga Kaala- Kaala measurement in terms of kshana, Muhurta, and so on up to Yuga.
6. Avasthika Kaala - The effect of Kaala on the phases of human life, such as Bala, Madhya, Vruddha, and so on.
7. Dinacharya - Explains the behaviour must be followed throughout the day in order to sustain Swastha.
8. Rutucharya- Explains the division and timing of seasons, as well as their characteristics and effects on

the body, with a regimen for each season.

9. Aahara and Agni - Types of Agni based on time of digestion of food, proper meal timing, conduct during food intake, time for digestion of food & production of Dhatus, and the value of timely meals.
10. Garbha-Garbhini Vidnyana, etc. - it explains menstruation, fertilization, Garbhini, foetal growth, pregnancy regimens, timing and symptoms of delivery in detail.

CONCLUSION

According to Ayurveda, 'Kaala' is the basic ingredient of matter and the most important of the nine Karana Dravyas. Every concept, symptom, medicine, therapy, and so on addressed in Ayurvedic science is inextricably linked to the effect of "Kaala." So, without the study of 'Kaala,' science is incomplete.

The 'Kaala' determines the fate of life. As a result, correct time (Kaala) should be maintained throughout one's life in order to sustain Swasthya. The kalas that give solid pillars for the ultimate goal of science are Avasthika Kala, Aahara Sevana Kala, Garbhini Kala, Rutu Kaala, Dinacharya, and Rutucharya. Because these are being increasingly disregarded in today's fast-paced society, it is critical to comprehend and apply the notion of Kaala.

REFERENCES

- [1] Purvya MC, Meena MS. A review on role of prakriti in aging. *Ayu.* 2011 Jan;32(1):20–4.
- [2] Dangayach R, Vyas M, Dwivedi RR. Concept of Ahara in relation to Matra, Desha, Kala and their effect on Health. *Ayu.* 2010 Jan;31(1):101–5.
- [3] Junjarwad AV, Savalgi PB, Vyas MK. Critical review on Bhaishajya Kaala (time of drug administration) in Ayurveda. *Ayu.* 2013 Jan;34(1):6–10.
- [4] Dangayach R, Vyas M, Dwivedi RR. Concept of Ahara in relation to Matra, Desha, Kala and their effect on Health. *Ayu.* 2010 Jan;31(1):101–5.
- [5] Chattu VK, Manzar MD, Kumary S, Burman D, Spence DW, Pandi-Perumal SR. The Global Problem of Insufficient Sleep and Its Serious Public Health Implications. *Healthc Basel Switz.* 2018 Dec 20;7(1).
- [6] Devi D, Srivastava R, Dwivedi BK. A critical review of concept of aging in Ayurveda. *Ayu.* 2010 Oct;31(4):516–9.
- [7] Shilpa S, Venkatesha Murthy CG. Understanding personality from Ayurvedic perspective for psychological assessment: A case. *Ayu.* 2011 Jan;32(1):12–9.

- [8] Bhargav H, Eiman N, Jasti N, More P, Kumar V, Holla B, *et al.* Composition of yoga-philosophy based mental traits (Gunas) in major psychiatric disorders: A trans-diagnostic approach. *Front Psychol.* 2023;14:1075060.
- [9] Travis FT, Wallace RK. Dosha brain-types: A neural model of individual differences. *J Ayurveda Integr Med.* 2015 Dec;6(4):280–5.
- [10] Donga KR, Donga SB, Dei LP. Role of Nasya and Matra Basti with Narayana Taila on anovulatory factor. *Ayu.* 2013 Jan;34(1):81–5.
- [11] Rao RV. Ayurveda and the science of aging. *J Ayurveda Integr Med.* 2018 Sep;9(3):225–32.
- [12] Chakraborty K, Thakurata RG. Indian concepts on sexuality. *Indian J Psychiatry.* 2013 Jan;55(Suppl 2):S250-255.
- [13] Telles S, Pathak S, Kumar A, Mishra P, Balkrishna A. Ayurvedic doshas as predictors of sleep quality. *Med Sci Monit Int Med J Exp Clin Res.* 2015 May 17;21:1421–7.
- [14] Uikey R, Kar AC. A review on Purisha Pariksha in Ayurveda. *Ayu.* 2015 Jun;36(2):125–9.
- [15] Dangayach R, Vyas M, Dwivedi RR. Concept of Ahara in relation to Matra, Desha, Kala and their effect on Health. *Ayu.* 2010 Jan;31(1):101–5.
- [16] Corney RA, Sunderland C, James LJ. Immediate pre-meal water ingestion decreases voluntary food intake in lean young males. *Eur J Nutr.* 2016 Mar;55(2):815–9.
- [17] Frenhani PB, Burini RC. [Mechanism of action and control in the digestion of proteins and peptides in humans]. *Arq Gastroenterol.* 1999 Sep;36(3):139–47.
- [18] Heda R, Toro F, Tombazzi CR. Physiology, Pepsin. In: *StatPearls. Treasure Island (FL): StatPearls Publishing; 2023.*
- [19] Agrawal S, Verma V, Gehlot S. Explication on tissue nutrition in prenatal and postnatal life: An Ayurveda perspective. *J Ayurveda Integr Med.* 2021 Mar;12(1):198–205.
- [20] Cheng M, Yao Y, Zhao Y, Lin Y, Gao S, Xie J, *et al.* The influence of socioeconomic status on menarcheal age among Chinese school-age girls in Tianjin, China. *Eur J Pediatr.* 2021 Mar;180(3):825–32.
- [21] Thiyagarajan DK, Basit H, Jeanmonod R. Physiology, Menstrual Cycle. In: *StatPearls.*

Treasure Island (FL): StatPearls Publishing; 2023.

- [22] Soma-Pillay P, Nelson-Piercy C, Tolppanen H, Mebazaa A. Physiological changes in pregnancy. *Cardiovasc J Afr.* 2016 Apr;27(2):89–94.