



REVIEW ARTICLE

PHYSIOLOGICAL APPROACH TOWARDS AAHARA SEVANA KAALA (RIGHT TIME FOR FOOD)

GAYATHRI HOLLA¹ SURESH Y²

ABSTRACT

The biological clock, a highly specialized, hierarchical network of biological pacemakers, directs and maintains proper rhythms in endocrine and metabolic pathways. The clock adapts to environmental changes, specifically daily light-dark cycles, as well as rhythmic food intake. Time-specific food intake has profound consequences on physiology of nutrition absorption in the body. As per the Vedic routine, one should eat only twice a day after performing Agnihotra Homa (sacrifice) in the morning and in the evening (before sunset). Food takes about 8 to 11 hours for proper digestion and thus keeps the body strong and energetic. Acharya sushruta and Charaka also mentions specific time for food; all these times are fixed scientifically. This topic throws light on the physiology behind the right time for food as explained in ancient literature. In this study, right time for gaining maximum nutrition from the food consumed will be explored under scientific background.

Key words: Dosha, Ahara sevana kaala, Time, Food.

¹PG Scholar, Dept. of Shareera Kriya Alva's Ayurveda Medical College and Hospital Moodbidri Karnataka.

²Associate professor, Dept. of Agada Tantra, Alva's Ayurveda Medical College and Hospital Moodbidri Karnataka

Corresponding Email id: hollagayathri@gmail.com Access this article online: www.jahm.in

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INTRODUCTION:

Our ancestor's physical and psychological strength were healthier. Proper quality and quantity of food intake in RIGHT TIME may be one of the secret of their health. Time has a major role in digestion, absorption and metabolism. If person fails to take food according to the physiological rhythm of hunger then such timing will greatly affect the nutrition absorption by body, resulting in less energy to work and later may lead to various kinds of life style diseases. This work will highlight the importance of right time for food intake.

Importance of *Kaala* (time):

Food which is taken timely will digest properly and maintains homeostasis of body⁽¹⁾. Timely taken food nourishes body on its optimum⁽²⁾.

As per the Vedic routine, one should eat only twice a day after performing *Agnihotra homam* in the morning and in the evening (before sunset). The food takes an about 8 to 11 hours for digestion. One should eat only after the complete digestion of previous meal. It is seen as unhealthy to eat, when the body is still in the process of digesting the previous meal. It is also advised that one should not eat anything for at least four hours after a meal. A gap of 10 to 12 hours between dinner and breakfast is advisable, and a gap of at least two hours between dinner and going to bed is seen as beneficial⁽³⁾.

Hunger:

Hunger can be classified in to physiological and psychological. Physiological hunger produces when there is lack of energy for tissue utilization and hormone mechanisms set in; for example, hunger is produced when there is positive feedback stimulation from grellin and negative feedback stimulation from hormones like insulin, leptin, cholecystokinin, peptide YY so on⁽⁴⁾.

Psychological hunger is of two forms one is produced as a conditioned reflex and other as a desired reflex. In the conditioned reflex, body is trained for fixed time food intake for many years. Hunger develops in that fixed time even if there is no physiological reflex. In desired reflex hunger triggers on seeing liking eatables even after a large meal.

When stomach is empty it releases an enzyme called grellin which stimulates the hypothalamus thus induces the hunger reflex by positive feedback mechanism, where person crave for food, when the food enter the stomach this enzyme production is suppressed resulting in cessation of hunger reflex. When the food enters duodenum small intestine and large intestine it secretes enzymes such as leptin, insulin, PYY and CCK which suppress the negative feedback mechanism of hunger reflex.

Aahara sevana kaala:

Kaala (time) is one among the *Ashta aahara vidhi vishesha aayatanaani* (8 principles of food intake) explained by *Acharya charaka*. Time is further divided in to *Nityaga* (routine) and *Avasthika* (situation wise) ⁽⁵⁾.

Aahara sevana kaala remains as *Ahoraatradiroopa* (Morning and evening) for person who is *Swastha* (healthy). The food should be taken only two times a day that is in the morning and in the evening (*Ahoraatradi Roopa*). As *Sooryodaya Kaala* (Sun rise time) varies in different *Rutu* (season), the time for food should be fixed according to the change in characteristic of day in different season.

Avasthika kaala is for *Rogis* (patient); the right time for food will vary according to the diseased condition. For example in the beginning of *Jwara* (fever) *Langhana* (fasting) is advised.

Physiology behind *Ekakala ashana* (one time food):

Ekakaala ashana is mentioned in *Sushruta samhita sutra sthaana* which is based on the characteristics of *Rutu* and *Sooryodaya kaala*. Having food once a day seems less practical for person who performs hard work but this timing is more followed by Yogic persons.

Table no. 1 - Food timings according to season for *Eka ashana* ⁽⁶⁾.

<i>Rutu</i> (Season)	Character of the day	Time for food(appx. 6 o'clock as <i>Sooryodaya Kaala</i>)
<i>Hemanta</i> and <i>Shishira</i> (nevenber – march)	Nights are very long	<i>Sapaada Yaama</i> (appx. 3hrs and 45 min after <i>Sooryodaya</i>) - 9.45 AM
<i>Greeshma, Pravrut</i> (may – September)	Days are very long	<i>Ardha Truteeya Yaama</i> (appx.10 and half an hour after <i>Sooryodaya</i>) -4.30PM
<i>Sharat, Vasantha</i> (september – November), (may – july)	Day and night are equal	<i>Samahoraatri madyaahna</i> (appx. 6 hrs after <i>Sooryodaya</i>) -12AM

Ekakaala ashana (one time food intake) along with the proper quality and quantity of food will acts as the natural remedy to prevent diseases. Yogic persons are less exposed to

diseases as they have a good control over food. There are many yogic people who still practice food intake once a day.

Table no.2 - Health benefits of food timings in different season ⁽⁷⁾.

<i>Rutu</i>	Status of <i>Dosha</i> and <i>Agni</i> (Apetite)	Property of <i>Rutu</i> (Season)	Property of <i>Ahaara</i> 9Food)	Right time for food	Benefits of <i>Kaala</i> in <i>Dosha Saamyata</i> & <i>Balavruddi</i>
<i>Hemanta</i> (november – January)	<i>Teeksaagni</i> , <i>Pitta Shamana</i>	<i>Sheeta</i> (cold)	<i>Snigdha</i> (Unctous), <i>Madhura</i> (Sweet), <i>Amla</i> (Sour), <i>Lavana</i> (Salt)	9.45AM	<i>Prakruta Kapha</i> <i>Poshana</i> , <i>Bala Vruddi</i>
<i>Shishira</i>	<i>Teekshnaagni</i> (Increased Appetite), <i>Kapha Chaya</i> (Accumulation)	<i>Sheeta</i>	<i>Snigdha</i> , <i>Madhura</i> , <i>Amla</i> , <i>Lavana</i>	9.45AM	<i>Prakruta Kapha</i> <i>poshana</i> (Nourishment), <i>Bala Vruddi</i> (Strength)
<i>Vasantha</i>	<i>Mandaagni</i> (decreased Appetite), <i>Kapha Prakopa</i> (Aggravation)		<i>Laghu</i> (Light), <i>Ruksha</i> (Dry), <i>Tikta</i> (Bitter), <i>Kashaya</i> (Astringent), <i>Lavana</i>	12PM	<i>Pitta & Vaata</i> <i>Poshana</i> , <i>Kapha Shamana</i> (Pacify)
<i>Greeshma</i>	<i>Vishamagni</i> (Varying appetite) , <i>Vaata Chaya</i> & <i>Kapha Shamana</i>	<i>Ushna</i> (hot)	<i>Laghu</i> , <i>Snigdha</i> , <i>Madhura</i>	3.30PM	<i>Vaata Shamana</i>
<i>Varsha</i>	<i>Durbalaagni</i> , <i>Pitta Chaya</i> & <i>Vaata Prakopa</i>	<i>Sheeta</i>	<i>Laghu</i> , <i>Sneha</i> (Oily), <i>Amla</i> , <i>Lavana</i> ,	3.30PM	<i>Vaata Shamana</i>
<i>Sharad</i>	<i>Pitta Prakopa</i>	<i>Ushna</i>	<i>Laghu</i> , <i>Madhura</i> , <i>Tikta</i> <i>Kashaya</i>	12PM	<i>Pitta Shamana</i>

In *Hemanta* and *Shishira* *rutu kapha dosha* is getting *Chaya* and *Agni* is strong hence recommended food timing is in the *Kaphaja Kaaala*. In *Greshma* and *Varsha* *rutu vaata Dosha* is getting *Chaya* and *Prakopa* hence recommended food timing is in the *Vaataj Kaaala*, thus the food taken undergo *Mdhura*

avastha paaka at first producing *Kapha* which reduces the *Vaata prakopa*. In *Vasantha* *rutu* to combat *Agni mandyata* food is taken in *Pitta kaala*. In *Sharad* *rutu* food is taken at *Pitta kaala* which undergoes *Madhura avastha paaka* at first producing *Kapha* which is having property opposite to *Pitta* thus overcome *Pitta*

Prakopa. One time food intake acts as *Aushadhi* (medicine).

Physiology behind *Dvikala ashana* (twice a day food intake):

Praatha (morning) and *Saayam* (evening) are the two right time to have food. *Aahara sevana kaala* is mainly depending on the

Sooryodaya kaala (sun rise time). The food which is taken in the morning should completely digested prior taking the evening meal⁽⁸⁾.

Acharya sushruta mentions timing for *Dvikaala ashana* in *Sootrasthana*. This timing of food intake lies within the *Kapha kaala*.

Table no.3 - food timing for *Dwikaala ashana* (two times food intake) ⁽⁹⁾.

<i>Pratha</i> (Morning)	<i>Sapaada prahara</i> - 3hr45min after <i>Sooryodaya</i> - 9.30 AM
<i>Saayam</i> (Evening)	<i>Ardha Chaturtha Prahare</i> - 13hr30 min after <i>Sooryodaya</i> -7.30 PM

Our body maintains a biological rhythm according to the day and night cycle. *Doshas* are distributed in day, night and in the process of digestion. Body will be nourished to its optimum when the digestion takes place

according to the biological rhythm of *Dosha*. If the food is taken at the right time as said by our *Acharya* then there will be homeostatic nourishment of *Tridoshas*.

Table no.4 - biological rythum of doshas in nourishing *Tridosha* ⁽¹⁰⁾.

Predominant <i>Dosha</i>	Day	Night	Digestion process/ <i>Avastha Paaka</i>	<i>Sthana</i>	<i>Dosha Poshana</i>
<i>Kapha</i>	Morning	Early night	First phase/ <i>Madhura Avstha Paaka</i>	<i>Hrudayadoordva</i> -mouth to upper part of stomach	<i>Kapha</i>
<i>Pitta</i>	Afternoon	Mid night	Second phase/ <i>Amla Avastha Paaka</i>	<i>Naabhihrudayamadye</i> - lower part of stomach, small intestine	<i>Pitta</i>
<i>Vaata</i>	Evening	Late night	Third phase/ <i>Katu Avastha Paaka</i>	<i>Adhonaabhi</i> - Large intestine	<i>Vaata</i>

Jeerne ashniayat means the food should be taken after the complete digestion of previous food. According to the modern physiology,

sufficient quantity of food takes around 8-10 hours for complete digestion in GI Tract.

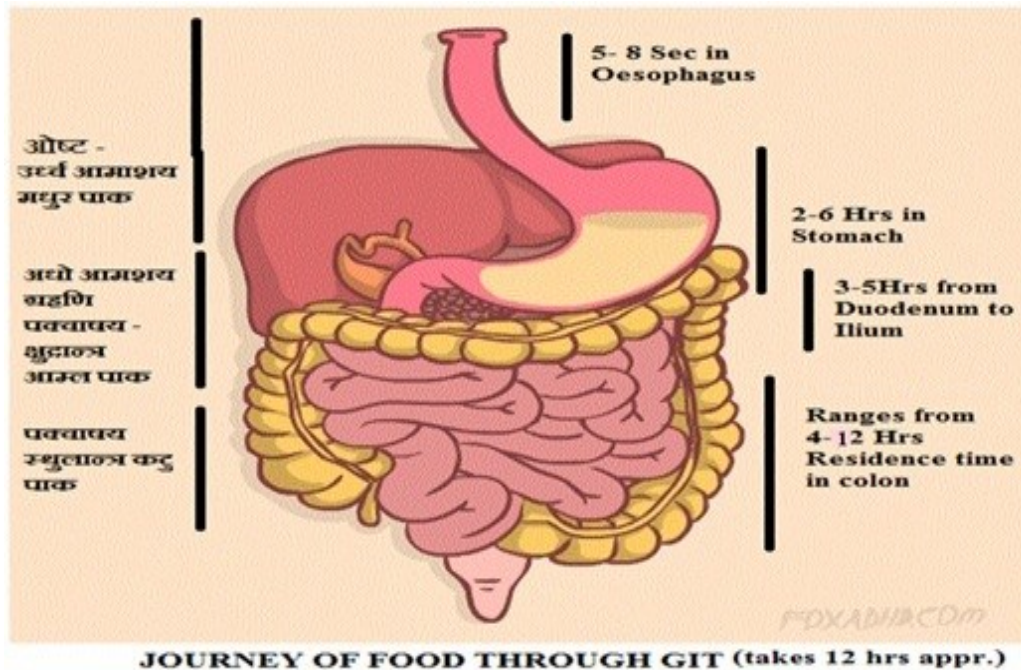


Figure number : 1 Journey of food through Gastro intestinal tract.

Time fixation for *Aahara sevana kaala* is Scientific as the time gap given between two meals is the time required for the food to get digested completely. When there is food in GIT there will be production of enzymes which suppress the hunger reflex. Even though the stomach is empty there will not be any kind of physiological hunger produced because the enzymes from the intestine will suppress the hunger reflex. So physiological hunger will be produced only after the final transformation of food in to fecal matter. Quantity and quality of food will give slight range in the time of digestion.

Right time for food in other system:

Modern system explains that the biological clock, maintains proper rhythms in endocrine and metabolic pathways. The clock adapts to environmental changes, specifically daily light-dark cycles, as well as rhythmic food intake. While time specific food intake have profound consequences on physiology of nutrition absorption in the body⁽¹¹⁾. The right timings for food intake are, morning breakfast between 7-9 am, afternoon lunch between 11am-2pm and evening dinner between 5-7pm.

Chinese medicine follow the 24 hrs circadian clock where the right timings for food are, morning breakfast between 7-9 am, afternoon

lunch between 11am-2pm and evening dinner between 5-7pm.

DISCUSSION:

It's hard to follow *Eka kaala ashana*, but on conditioning body's hunger reflex one can follow the *Dvi kaala ashana* which will helps in prevent diseases and maintain normalcy of health.

Swastha person should incorporate this timing in their routine and for *Baala* (child) it is not necessary to follow this time rule.

Aahara sevana kaala will remain same for all *Prakriti*, depending on one's status of *Agni* quality and quantity of food should be planned. *Jeerna Lakshana* is the indicator to consume second meal.

Food consumed after considering proper quality and quantity will take 6- 10 hrs for digestion. Hunger reflex which is developed after 6 hrs of meal is physiological and then one should go for second meal. It is also said that one should not eat within six hours and also one should not fast after developing hunger reflex.

According to person's profession, *Prakriti* (body constitution) and location the metabolic rate vary and the frequency of food intake also may vary. Knowledge of physiological hunger and appropriate quality and quantity of food will help to change the food pattern according to profession. Meal must be taken only two times per day but if person gets hungry in

between he can take snacks (light food) which get digested before the next meal.

Practice of *Eka Kaala Ashana* is highly beneficial and challenging because present life style does not support *Eka Kaala Ashana*. *Dwikaala Ashana* is also a challenge but gradually it can be started and followed by conditioning the body to the right timings.

CONCLUSION:

Aahara Sevana Kaala plays an important role in the proper digestion, absorption and nourishment of consumed food. Practice of *Eka Kaala Ashana* is highly beneficial, but due to the present lifestyle of an individual does not support *Eka Kaala Ashana* instead of this at least one should adopt *Dwi Kaala Ashana* and it can be implemented gradually.

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