Available online on 15 Sep, 2023 at http://www.hjhs.co.in/index.php/hjhs

Himalayan Journal of Health Sciences

Published by Himalayan Group of Professional Institutions
Associated with Himalayan Institute of Pharmacy

Review Article

Open Access

Physiology of Digestive System w.s.r. to *Avastha Paka*: an Ayurveda Review

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Abstract

According to medical science, digestion is the process by which complex food is broken down into its simplest form. These all peculiarities happen in gastrointestinal area. According to Ayurveda, *Dhatwagni*, *Jathragni* and *Bhutagni* are responsible for breaking down complex food into its simplest monomers. The *Agni* assumes key part in this cycle hence legitimate working of *Agni* is essential for the stomach related physiology. *Grahani* or *Pakvamashaya* is considered as the site of *Jathragni*. The process of digestion is helped by various components like *Kledaka kapha*, *Pachaka pitta* and *Samana vayu. Samana vayu* stimulates the *Pachakagni* so that food can be separated, *Kledaka kapha* softens food, and *Pachaka pitta* helps in the digestion process. The absorption begins with the utilization of food and this cycle finished in three phases specifically *Avastha paka*, these phases of *Avastha paka* are *Madhur avastha paka, Amla avastha paka* and *Katu avastha paka*.

Keywords: *Avastha paka, Madhur avastha paka, Amla avastha paka, Katu avastha paka*

Article Info: Received 19 Jul 2023; Review Completed 10 Jul 2023; Accepted 22 Jul. 2023

Cite this article as:
Gandhe MA, Wagh SR, Dandale SP. Physiology of Digestive System w.s.r. to *Avastha Paka:* an Ayurveda Review Himalayan J H Sci [Internet]. 2023 Jul 22 [cited 2023 Jul 22]; 8(3):1-3. Available from: http://www.hjhs.co.in/index.php/hjhs/article/view/173

DOI: 10.22270/hjhs.v8i3.173
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1. Introduction

Ahara is thought to be one of the pillars of life because it controls physiology and keeps all body functions in synchronization. Food nutrition boosts *Dhatus* and provides numerous health benefits. The infamous pith possibly got from food materials assuming that it get processed appropriately.

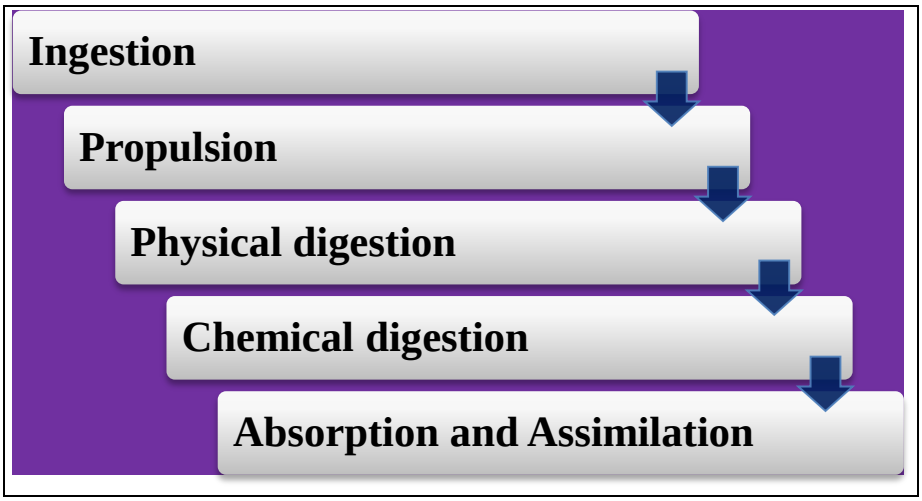

Figure 1. Various stages of digestion as per modern science

Agni and metabolic enzymes play a role in the digestion of food, which converts complex food into its simplest form, resulting in the formation of nutrients that the body needs to maintain normal physiological function. (1-4) The various stages of digestion as per modern science are depicted in Figure 1.

Food digestion is essential for maintaining *Dosha*, *Agni* and *Dhatu* balances, among other things. After being digested, *Ahara* produces nutrition that provides strength and longevity, etc. The physiology of assimilation only relies on the properties of food materials like *Gurutava* and *Laghutava*. Comparable to the physiology of assimilation Ayurveda referenced idea of *Avasthapaka* which suggest processes that take places during the absorption of food. Under the influence of *Agni*, the *Ahara dravyas* in *Kostha* digested into essential nutrients. The *Agni* is described as liable factor for the course of *Ahara Pachana*. (4-7)

2. Physiology of Digestion as per Ayurveda

In the beginning, *Madhura bhava* reaches *Amashaya* via *Ahara* in the stage known as *Madhura Avasthapaka*. Sugars are broken down by salivary amylase into glucose, which is then absorbed as an energy source.

In *Pachhmanasaya*, *Ahara* is subjected to vigorous digestion in the *Amla Avasthapaka*, which is regarded as the second stage of *Avasthapaka*. The acidic mode of chyme came about *Amlabhava*. In *Pachymanasaya*, food that has been partially digested is further digested and absorbed here.

The third stage is *Katu Avasthapaka*, the retention of electrolytes and water take places in the digestive organ. Water and electrolytes consumed from the *Pakwasaya*, bolus of feces structures after the assimilation of water.

The unfortunate way of life, food contrariness, low fiber diet and stress, etc. may result in abnormalities that causes pathological symptoms like stomach pain, cramps, nausea, gas, constipation and vomiting, etc. These symptoms frequently indicate digestive issues heartburn, bowel syndrome, bloating and anorexia, etc. Ayurveda proposed disciplinary behaviors of way of life for relieving stomach related issues or reestablishing typical physiology of digestion. (7-9)

Avastha-paka

The digestion of food in the gastrointestinal system is referred to as *Avasthapaka*, and it involves the transformation of one form of food into another. *Amashaya*, *Pachyamaanaasaya* and *Pakwasaya* are includes in this process. The *Prapaka* and *Vipaka* portrayed as *Pratham paka* or first change and last changed state separately. *Prathampaka* is subjected to the final transformation during *Jatharagni's* transformations.

The biochemical changes happen in three phases of food assimilation relying on the contribution of *Madhur*, *Amla* and *Katu* component in process. *Avasthapaka* in this way grouped into *Madhura Avastha Paka*, *Amla Avastha Paka* and *Katu Avastha Paka*.

Madhura avastha-paka

Food comprising of different *Rasa* including *Madhur Rasa* that appeared during the *Avastha-paka* as a piece of first stage, *Kapha*, a substance regarded as thin and frothy, is formed at this stage. This stage happens in *Amashaya* since it is appreciated by *Madhur bhava*. *Agni*, *Samana Vayu* and *Kledaka Kapha*, etc. in the stomach contributed towards the physiology of *Madhura awastha paka*.

According to current science this stage can be corresponded to the change of carbohydrate into basic sugar. The assimilation of carbohydrate in buccal cavity by salivary chemical transforms carbohydrate into simple sugar. The food that reaches the oral cavity causes saliva to be secreted, which contains the enzyme amylase, which helps in the transformation of carbohydrates. *Pachana* and *Kledana* of carbohydrate and related food materials are initiated by saliva in the mouth. In this stage carbohydrate get changed into sucrose, maltose and lactose, etc. (6-8)

Amla Avastha-Paka:

Amla Avastha-Paka takes places in *Pachmanasaya*, the absorption of food after the principal stage happens in *Pachyamansaya* affected by pancreatic amylase. A few pieces of *Madhur awastha paka* go through in *Pachyamanasaya* subsequently it is considered as halfway site for the *Madhur avastha pak*. The emission of hydrochloric corrosive in the stomach somewhat stops the movement of amylase prompting the halfway finish of *Madhur awastha paka*.

Amlabhava is developed in the chime's acidic medium, which results in sourness. The beginning of *Amlabhava* take places during this stage and full assimilation of food take places in *Amla avastha pak*. The *Grahni* includes activities of *Pachak pitta* and keeps indigested food which further exposed to the activity of *Agni*.

The activity of *Agni* assists with processing food while ingestion of *Sara bhag* occurs with the assistance of *Samana vayu*. The peristaltic movement is targeted by the undigested food. *Pachyamanashya* refers to the region between *Amashya* and *Pakvashya* in which *Grahni* is situated.

Achchha pitta carries pH to work with different enzymatic emissions of digestive system. Products such as peptone and fatty acids, etc. are shaped here in *Amlavastha*, food has properties of *Amla rasa* consequently this stage named as *Amlavastha*. *Ahararasa* retained through *Pittadharakala* and *Apakva* food stays after *Amlavastha* is removed by the impacts of *Samana vayu*.

Peptic cells in the stomach's gastric glands release pepsinogen, which produces pepsin, which support protein digestion. The significant parts of protein get processed in *Pachyamanasya* by the compound of pancreatic emissions. The *Vidagdha Ahara* in *Pachyamanasaya* causes *Achchha pitta* to be released. The *Achchha Pitta* incorporates bile and pancreatic discharges that work with assimilation of fats, starches

and proteins. Pepsin helps in the transformation of protein to proteoses, polypeptides and peptones. (8-10)

Katu avastha-paka:

The third *Avasthapka* of assimilation is *Katu avastha-paka* in which processed food materials further treated in *Pakvashaya*. The excess undigested food varieties go through aging cycle affected by gastrointestinal microorganisms. The creation of *Vayu* gets animated in this cycle. Food undergoes drying as it travels from *Pachya-manashaya* to *Pakvashaya* and then *Shoshymanasya* due to the absorption of water.

According to current thinking, the small intestine is where digestion and absorption take place primarily. In digestive organ, retention of water take places and bacterial activity occurs in *Pakvashaya*. Bacterial action causes gases that add to flatus in the colon. The smell of feces credited to its parts i.e.; indole, mercaptans and hydrogen sulfide, since they all have *Katu bhava*, this stage is called *Katu avastha-paka*. When the large intestine is stimulated, excessive gas expulsion may occur, promoting peristaltic gas expulsion before gas absorption. (9-11)

3. Conclusion

Ayurveda ordered course of absorption of food materials into three stages for example *Madhura Avastha Paka, Amla Avastha Paka* and *Katu Avastha Paka*. The first stage, *Madhura Avastha Paka*, involves the digestion of carbohydrates and relies heavily on salivary amylase. *Amla Avastha Paka* is the second stage, and it involves the digestion of food in the *Vidagdha* form in *Pachyamanasaya*. The *Amlabhava* secure because of the emission of acidic hydrochloric acid in stomach. The third phase of *Avasthapka* is *Katu Avastha Paka* in which food material scopes to *Pakvashaya* and lingering materials go through to the maturation cycle affected by digestive microorganisms. There is a connection between the modern concept of the physiological process of digestion & metabolism and the Ayurvedic concept of *Avastha paka*.

Acknowledgements

We would like to express our gratitude to Himalayan Journal of Health Sciences who gave us the opportunity to publish the article.

Financial Disclosure statement: The authors received no specific funding for this work.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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