



Review Article

A REVIEW ON *PASCHATA KARMA* OF *AHARA* AND ITS EFFECT ON POSTPRANDIAL GLYCAEMIA  
W.S.R. SATAPADA GAMANA

Sadaf Ahmed<sup>1\*</sup>, Ankita<sup>1</sup>, Medha Kulkarni<sup>2</sup>, Shivakumar S. Harti<sup>3</sup>

<sup>1</sup>PG Scholar, <sup>2</sup>Professor, <sup>3</sup>Associate Professor, Dept. of Swasthavritta, All India Institute of Ayurveda, New Delhi, India.

**ABSTRACT**

Over the past several decades, the physical activities and fitness of Indian's have significantly decreased which results in expand of non-communicable diseases where Diabetes is most common. Regular physical activity is accepted widely as an effective preventable measure for a variety of health risks as it helps in regulating blood glucose and other Physiological effects. Proper utilization of Glucose is very important. Limited instruction is available for post meal Procedure and about physical activity which affects postprandial glycaemia. In this regard the present study is taken to find out the post dietary activities mentioned in Ayurveda and contemporary science. Study also implies that there is extensive scope of scientific research in this field in order to justify the textual references and to generate the data.

**KEYWORDS:** Postprandial Glycaemia, *Paschata Karma*, *Ahara*, Activity, Exercise.

**INTRODUCTION**

*Ahara*, *Nidra* and *Bhramcharya* are the main pillars to carry the body with positive health. The consumption of all three in specific quantity and quality leads to longevity.<sup>[1]</sup> The special emphasis on "*Ahara*" (diet) and "*Anna*" (food) is given as described on prime basis, is a means to good life, health and wellness. Healthy and wholesome food nourishes the mind, body and soul.<sup>[2]</sup> Diet and lifestyle are main factors thought to influence susceptibility to many diseases, In Ayurveda *Dinacharya*, *Ritucharya* and *Rasayana* etc are mentioned for health promotion and disease prevention. Detail description of rules and regulations related with *Ahara* has been mentioned. Some specific procedures has also mentioned which has to follow after meal but in very scattered way which involves *Anupana*, *Akshi Prakshalan*, *Danta Dhavana*, *Achmana*, *Satapadagaman*.

World has been struggling to deal with the double burden of under and over nutrition. India has peculiar nutritional status where under nutrition and over nutrition coexists among urban population. But over nutrition always remains the prime concern as it is associated with many other disorder where diabetes and obesity is main<sup>[3]</sup>. Poorly managed blood glucose is one of the prime contributors in development of Diabetes<sup>[4]</sup> and Cardiovascular disease<sup>[5,6]</sup> at subclinical levels.<sup>[7,8]</sup>

In *Dinacharya* Exercise has been mentioned with its benefits, which is required for healthy lifestyle. Regular exercise and physical activities helps in regulating blood glucose<sup>[9,10]</sup> and activity-mediated skeletal muscle glucose uptake helps in drastically reducing circulation levels<sup>[11]</sup>. This is the major reason why there is a strong push and promotion for regular exercise and activities<sup>[12,13]</sup> in order to control blood glucose and regulate the same. In fact, regular activities are advised not only to general population but also to subgroups of the population where internal glycaemic regulation is no longer sufficient.

On this background present study is taken to find out the post dietary activities mentioned in Ayurveda and contemporary science and its effect on Post Prandial Glycemia. Study also implies that there is extensive scope of scientific research in this field in order to justify the textual references and to generate the data

**AIMS AND OBJECTIVES**

- To analyze the Procedures which have to be followed after a meal.
- To analyze the effect of post dietary activities on postprandial glycaemia.

**MATERIALS AND METHODS**

- Available classical literature and Electronic Databases was searched.

**OBSERVATIONS****Anupana**

In Ayurveda *Anupana* has great importance and it is described for both healthy and diseases. Literally meaning of *Anupana* is "Anu' means *Paschat* (later) and *Pana* means drinking. So *Anupana* is defined as a material, which is taken along with or after the meal and drug. In text list of *Anupana Dravyas* like *Shitalajala* (cold water), *Ushnajala* (Hot water), *Aasava* (fermented liquids), *Arishta* (wines),

*Phalamla* (alcohol prepared from fruits), *Dhanyamla* (alcohol prepared from grains), *Ksheera* (milk) and *Rasa* (meat soup). Rain water is considered to be the best *Anupana*<sup>[14]</sup>. According to Acharya Vagbhata, *Jala* (water) is considered as best *Anupana* for both healthy and diseased persons<sup>[15]</sup> According to Acharya Sushruta, *Mahendrajala* (Rain water) is considered as best *Anupana* in all type of *Dravya* (liquid)<sup>[16]</sup>.

**Table 1: Varieties of Anupana used after food<sup>[17]</sup>**

| S.No. | Variety                        | Uses  |
|-------|--------------------------------|---|
| 1.    | Unctuous and Hot               | Aggravation of <i>Vata Dosha</i>  |
| 2.    | Sweet and Cold                 | Aggravation <i>Pitta Dosha</i>  |
| 3.    | Unctuous and Hot               | Aggravation <i>Kapha Dosha</i>  |
| 4.    | <i>Mamsa Rasa</i> (meat soup)  | Depletion of <i>Sapta Dhatus</i>  |
| 5.    | Milk                           | Exhausted by indulgence in fasting, long walk, speaking for long time, sexual intercourse and exposure to wind and sunlight |
| 6.    | <i>Sura</i> (wine)             | Emaciated individuals   |
| 7.    | <i>Madhudaka</i> (honey water) | over corpulent individuals  |
| 8.    | <i>Madhya</i> (alcohol)        | Poor digestive power  |

When no specific *Anupana* is described, then, *Madhu* or *Jala* can be taken.<sup>[18]</sup> It is must to take *Anupana*, as it helps in mixing of *Ghana Ahara* (solid food) with liquid portion, otherwise, it will remains movement less and results in disorders. Hence, appropriate *Anupana* should be used after the meals.

➤ **Indriyaswasthya**

Various measures have been described for *Indriya swasthya*. But some specific measures which should follow after meal are *Akshi Prakshalan*, *Danta Dhavana*, *Achmana*. Water should be taken after *Achmana* and remove the stuck food particles (*Danta Dhavana*) and wash the mouth again. *Akshi Prakshalan* (Touch the eyes with wet hands), pray while rubbing hand on belly. It will enhance the *Indriyaswasthya* of the person

➤ **Dhumpana**

While discussing the indication of *Prayogika Dhumpana* i.e, it is to be followed on daily basis. It is advocated to take *Prayogika Dhumpana* just after meal because *Kapha* increases immediately after meal.

➤ **Mukha Sughandi Dravya**

Drugs having Bitter, Pungent and Astringent taste like *Puga*, *Karpura*, *Kasturi*, *Lavanga*, *Jatiphala* and *Tambula* leaves has to chew after meal as, they are aromatic and have *Kapha* pacifying properties.

➤ **Satapada Gamana**

One should sit *Rajavata* (comfortably) till the strain of food is over followed by hundred steps walk and lie in left lateral position. Person should listen to favorite sounds, sights, smells and touches it will helps in proper digestion of food.

➤ **Panchakarma Procedures**

*Pratimarsha Nasya*, *Matra Basti* or *Anuvashan Basti* has been indicated after meal. Acharya Sushrut mentioned 14 *Kaal* of *Pratimarsha Nasya* and *Bhojanouttar* (post meal) is one of them, it will clear the *Shrotas* and gives *Laghuta*<sup>[19]</sup>. Acharya also mentioned the *Kaal* for *Matra Basti* or *Anuvashan Basti as Aadrapani* (wet hands) i.e. immediate after meal.<sup>[20]</sup>

➤ **Rasayana**

*Triphala Rasayana* where one *Haritiki* has to be taken after complete digestion of meal, two *Bhibhitaka* just prior to meal and four *Amalaki* with *Madhu* and *Ghrita* just immediate after meal will act as *Rasayana* when continued for one year<sup>[21]</sup>.

➤ **Aushad Sevan Kaala**

Medications should administer just after meal (*Pashchatbhakta*) in disorders of upper part of the body and to give strength<sup>[22]</sup> *Pashchatbhakta Kaala* is divided in two<sup>[23]</sup>: *Pratah Bhojana Kaala* – indicated for *Vyana Vata Vikruti* and *Sayam Bhojana Kaala* – indicated for *Udaan Vata Vikruti*.

➤ **Contraindications**

sleeping or sitting, expose to fire and the sun, swimming, travelling and riding must be avoided after meal as they may leads to *Dosha* vitiation.<sup>[24,25]</sup>

**DISCUSSION**

Dietetics in Ayurveda is entirely different from modern concept, as it is much customised depending upon person and conditions. Various rules and regulation are described related with *Ahara*. Various benefits of *Anupana* has been mentioned including *Tarpti*, *Preenyati*, *Urjayati Brihanyati*,

*Paryaptima, Abhinirvartayati, Bhukat Amvasadayati, Annasanghatbhinnati, Mardavmapadayati, Klaedayati, Jaryati, Sukha Parinamyati, Aashu Vyavayati* (helps in instant diffusion of the food taken), *Aaharsya Upajanyati* (supply the food to the tissues), *Rochana, Vrishya, Kshramhar* (relieve fatigue), *Deepan, Doshashaman, Pipasachchedan* (quenches thirst), *Varnakar*.<sup>[26,27]</sup> In observations we found that *Anupana* should take after meals but here the quantity and body constitution must be assessed before drinking because over drinking may leads to *Manda Agni*, water consumption is wholesome for lean body but contraindicated for obese person. Various procedures has mentioned for *Indriya-swasthya* starting from oral hygiene as, it harbor number of bacteria so, it became essential to clean the tooth after meal because stuck food particle is notorious for bacterial growth and results in foul smell and other dental problems. In continuation of *Indriyaswasthya*, eyes have to whip with wet hands it will enhance the general health of the eyes and prevent *Timira* (cataract).

There is the physiological variation in the *Doshas* as per the stage of digestion like *Vata* increases after digestion, *Pitta* increased while digestion and *Kapha* increased immediate after meal. So, different procedures should be followed as per the *Doshic* dominance. That's why *Dhumpana* is advised after meals as it pacifies *Kapha*.

Time of medication is very important, as it affect the mode of the action of the drug. The time *Pratah* is specifically told because the site of *Vyana Vata* is *Hriday* and it remains open during morning. Hence, the medicine administered during morning reaches the *Hridaya*. It should be administered after food because the *Vyana Vata* is activated after the formation of *rasa* so that it can be carried all over the body. Hence, the food is administered first and the medicine is administered later.

*Agni, Gharani* and *Guda* all are said to be situated in left side<sup>[28]</sup> So, it is advised to lie in left lateral position for better absorption of meal. Despicable sounds, sights, tastes, smells and touches and also dirty food and excessive laughter may vitiates the *Vata* and results in deposition of food which may induce vomiting etc. Psychological factors also plays important role in Digestion<sup>[29]</sup> that's why Pray, favorite sounds, sights, tastes, smells and touches after taking food is essential for better mental health and also the belief that food provide the pleasure and charming physique be free from diseases has impact. Lying and bedding also played important role for proper digestion as, it is

mentioned that food will remain undigested if person sleep on inappropriate bedding<sup>[30]</sup>.

*Satapada Gaman* after meals loosens the collected food and provides comfort to neck, knees and waist. The person who prefer sitting after meal becomes pot-bellied due to improper digestion. Sleeping after meal causes vitiation of *Mamsavhashrotasha*<sup>[31]</sup>. Walking improves the longevity while running is injurious.

### Effect of Post Dietary Physical Activities on Postprandial Glycaemia

Preferred and suggested time of post meal activity is 30 min after finishing meal. Primary reason for such suggestion is that this coincides with the greatest influx of dietary-derived glucose into the bloodstream. It is advisable that activity should be done at the blood glucose peak may be more effective at reducing blood glucose compared to an activity done during carbohydrate absorption keeping in mind the increase in glucose utilization is at higher concentration of plasma glucose Major factor which can control blood glucose is the postprandial response. Regular sessions of postprandial hyperglycaemia spread over months and years can result in accumulated micro- and macro-vascular damage<sup>[32,33,34]</sup> and are the primary determinants of glycaemic variability<sup>[35]</sup> and major contributor of protein glycation<sup>[36]</sup>. This is an established fact that both pre- and postprandial physical activity in adults with normal glucose tolerance has reduced postprandial blood glucose excursions<sup>[37,38,39]</sup>. As per the conclusion drawn from the study, activity after eating gives a more favourable post-meal glycaemic response in comparison to same amount of pre-meal activity<sup>[40]</sup>

This has been observed that light walking immediately after the meal lowered postprandial glycaemia<sup>[41]</sup> as did activity commenced 30 min after the start of a meal<sup>[42]</sup>. On contrary delaying the start of activity for one hour following the start of eating resulted in no glycaemic benefit compared with a sedentary condition<sup>[43]</sup>

As per the data collected from the test conducted on 14 healthy women, slow walking for just 15 min started immediately following a diet resulted in a 1.5 mmol/L reduction in blood glucose concentration at the end of the active period compared with a sedentary arm<sup>[44]</sup>. On contrary blood glucose concentration was not different among 11 adults when eight minutes of moderate intensity cycling was undertaken immediately following eating compared with control<sup>[45]</sup> and was higher by ~1 mmol/L 30 min after finishing 15 min bouts of cycling by six healthy volunteers compared with a control arm<sup>[46]</sup>. There may be multiple reasons for

varied findings; including differences in participant demographics and study design knowingly the sample numbers were small.

This really gives food for thought whether low intensity activity over a short duration of time could influence postprandial glycaemia of a larger group. The major's factors which matters the most are duration and intensity of the activity if lowering postprandial glycaemia is a long-term goal requiring sustained adherence over years or a lifetime.

## CONCLUSION

Diet and Lifestyle remains main cause of various disorders because they cause *Agni Dusthi* and leads to *Aam* formation. So, modification in faulty diet and lifestyle is very important to maintain the health and to prevent diseases. In a healthy lifestyle exercise is of prime concern; the person must consider the activities after taking food so as to get maximum benefits from it.

## REFERENCES

1. Charaak samhita sutrastanha 11th chapter Chaukahmbha krishdashakadami, Varanashi, Dr.Lakshidhar Dwivedi 2013, page no. 231
2. Ibid; 25th chapter yaajapurishyie, page no. 449
3. Lifestyle diseases, change in nutrition consumption pattern making urban India unhealthy By Meenakshi Sushma Last Updated: Friday 06 October 2017
4. Danaei, G.; Finucane, M.M.; Lu, Y.; Singh, G.M.; Cowan, M.J.; Paciorek, C.J.; Lin, J.K.; Farzadfar, F.;Khang, Y.H.; Stevens, G.A.; et al. National, regional, and global trends in fasting plasma glucose and diabetes prevalence since 1980: Systematic analysis of health examination surveys and epidemiological studies with 370 country-years and 2.7 million participants. Lancet 2011, 378, 31–40.
5. Bonora, E.; Muggeo, M. Postprandial blood glucose as a risk factor for cardiovascular disease in Type II diabetes: The epidemiological evidence. Diabetologia 2001, 44, 2107–2114.
6. Bruno, A.; Biller, J.; Adams, H.P.; Clarke, W.R.; Woolson, R.F.; Williams, L.S.; Hansen, M.D. Acute blood glucose level and outcome from ischemic stroke. Trial of ORG 10172 in Acute Stroke Treatment (TOAST) Investigators. Neurology 1999, 52, 280–284.
7. Saydah, S.H.; Loria, C.M.; Eberhardt, M.S.; Brancati, F.L. Subclinical states of glucose intolerance and risk of death in the U.S. Diabetes Care 2001, 24, 447–453.
8. Khaw, K.T.; Wareham, N.; Luben, R.; Bingham, S.; Oakes, S.; Welch, A.; Day, N. Glycated haemoglobin, diabetes, and mortality in men in Norfolk cohort of european prospective investigation of cancer and nutrition (EPIC-Norfolk). BMJ 2001, 322, 15–18.
9. American Diabetes Association. Standards of Medical Care in Diabetes-2018 Abridged for Primary Care Providers. Clin. Diabetes 2018, 36, 14–37.
10. Wannamethee, S.G.; Shaper, A.G.; Alberti, K.G. Physical activity, metabolic factors, and the incidence of coronary heart disease and type 2 diabetes. Arch. Intern. Med. 2000, 160, 2108–2116.
11. Sigal, R.J.; Kenny, G.P.; Wasserman, D.H.; Castaneda-Sceppa, C. Physical activity/exercise and type 2diabetes. Diabetes Care 2004, 27, 2518–2539.
12. Tremblay, M.S.; Warburton, D.E.; Janssen, I.; Paterson, D.H.; Latimer, A.E.; Rhodes, R.E.; Kho, M.E.; Hicks, A.; Leblanc, A.G.; Zehr, L.; et al. New Canadian physical activity guidelines. Appl. Physiol. Nutr. Metab. 2011, 36,36–46.
13. National Health Service England. A Practical Guide to Healthy Ageing. 2015. Available online: <https://www.england.nhs.uk/wp-content/uploads/2015/09/hlthy-ageing-brochr.pdf> (accessed on 17 October 2018).
14. Acharya JT. Susruta Samhita of Susruta with Nibandha Sangraha Commentary of Sri Dalhanacharya and Nyayachandrika Panjika of Sri Gayadasacharya. Reprint.
15. Murthy K. R, Shrikantha, Ashtanga Sangraha of Vagbhata. Edition 1, Varanasi: Chaukhambha Orientalia, 2002, (Vol-III), 264
16. Sushruta. Sushruta samhita. Edited by Acharya priyavat Sharma. 8th edition. Varanasi: Chaukhambha Orientalia publication; 2005. Sutra sthana, 46th chapter, verse 434, 245pp.
17. Charak Samhita, with Charak Chandrika Hindi commentary, by Dr.Brahmanand Tripathi and Dr. Ganga Sahay Pandey, Sutra Sthana Chapter 27, Verse 324 page No. 540 Chaukhamba Surbharti Prakashan, 2007.
18. Bhavprakash Purvakhanda. 6th chapter. Haritakyadi varga, verse 34, 163 pp.
19. Sushruta Samhita Chikitsashsthana, 45th chapter, Chaukhambha Visvabharati Varanasi 2013, PV Sharma, 40-50
20. Ibid; 37-43
21. Charak Samhita, with Charak Chandrika Hindi commentary, by Dr.Brahmanand Tripathi and Dr.Ganga Sahay Pandey, Chikitssha Sthana Chapter 1/2 Sutra 42, Verse Chaukhamba Surbharti Prakashan, 2007
22. Sushruta. In: Sushruta Samhita, Uttra Tantra, Swasthokrama Adhyaya, 64/72. Reprint 1st edition. Acharya JT, editor. Varanasi: Chaukhambha Surbharati Prakashan; 2003. p. 813.

23. Ibid; Swasthopkrama Adhyaya, 64/67. p. 813.
24. Sushruta Samhita, Chaukhambha Visvabharati Varanasi 2013, PV Sharma, Sutrasthana, 46th chapter 482-490 verse, pg 553-554
25. Yogaratnakar, Asha Kumari, Premwati Tewari, Chaukhambha Visvabharati Varanasi 2010, 647-689 verse, pg 80-85
26. Charak Samhita, with Charak Chandrika Hindi commentary, by Dr.Brahmanand Tripathi and Dr. Ganga Sahay Pandey, Chaukhamba Surbharti Prakashan, 2007. Sutra Sthana Chapter 27, Verse 325 page No. 540
27. Sushruta. Sushruta Samhita. Ambikadutta Shastri, editor. 2nd edition. Varanasi: Chaukhamba Sanskrit Sansthan; 2007. Sutra Sthana 46/442-443.
28. Charaak samhita sidhisathana 3/24, 3rd chapter Chaukhambha krishdashakadami, Varanashi, Dr.Lakshidhar Dwivedi 2013, pageno. 713
29. Ibid; vimansathana 2/9, 2nd chapter pageno. 699
30. Ibid; vimansathana 2/9, 2nd chapter pageno. 699
31. Charaak samhitavimansathana 5/15, 5th chapter Chaukhambha krishdashakadami, Varanashi, Dr.Lakshidhar Dwivedi 2013, pageno. 713
32. Bonora, E.; Muggeo, M. Postprandial blood glucose as a risk factor for cardiovascular disease in Type II diabetes: The epidemiological evidence. *Diabetologia* 2001, 44, 2107–2114.
33. Bruno, A.; Biller, J.; Adams, H.P.; Clarke, W.R.; Woolson, R.F.; Williams, L.S.; Hansen, M.D. Acute blood glucose level and outcome from ischemic stroke. Trial of ORG 10172 in Acute Stroke Treatment (TOAST) Investigators. *Neurology* 1999, 52, 280–284.
34. Ceriello, A. Postprandial hyperglycemia and diabetes complications: Is it time to treat? *Diabetes* 2005, 54, 1–7. *Nutrients* 2018, 10, 1743 8 of 9
35. Woerle, H.J.; Neumann, C.; Zschau, S.; Tenner, S.; Irsigler, A.; Schirra, J.; Gerich, J.E.; Goke, B. Impact of fasting and postprandial glycemia on overall glycemic control in type 2 diabetes Importance of post prandial glycemia to achieve target HbA1c levels. *Diabetes Res. Clin. Pract.* 2007, 77, 280–285.
36. Austin, G.E.; Mullins, R.H.; Morin, L.G. Non-enzymic glycation of individual plasma proteins in normoglycemic and hyperglycemic patients. *Clin. Chem.* 1987, 33, 2220–2224.
37. Englert, V.; Wells, K.; Long, W.; Hickey, M.S.; Melby, C.L. Effect of acute prior exercise on glycemic and insulinemic indices. *J. Am. Coll. Nutr.* 2006, 25, 195–202.
38. Aadland, E.; Hostmark, A.T. Very light physical activity after a meal blunts the rise in blood glucose and insulin. *Open Nutr. J.* 2008, 12, 94–99.
39. Short, K.R.; Pratt, L.V.; Teague, A.M. The acute and residual effect of a single exercise session on meal glucose tolerance in sedentary young adults. *J. Nutr. Metab.* 2012, 2012.
40. Haxhi, J.; Scotto di Palumbo, A.; Sacchetti, M. Exercising for metabolic control: Is timing important? *Ann. Nutr. Metab.* 2013, 62, 14–25.
41. Lunde, M.S.; Hjellset, V.T.; Hostmark, A.T. Slow post meal walking reduces the blood glucose response: An exploratory study in female Pakistani immigrants. *J. Immigr. Minor Health* 2012, 14, 816–822.
42. Nelson, J.D.; Poussier, P.; Marliss, E.B.; Albisser, A.M.; Zinman, B. Metabolic response of normal man and insulin-infused diabetics to postprandial exercise. *Am. J. Physiol.* 1982, 242, E309–E316.
43. Borer, K.T.; Wuorinen, E.C.; Lukos, J.R.; Denver, J.W.; Porges, S.W.; Burant, C.F. Two bouts of exercise before meals, but not after meals, lower fasting blood glucose. *Med. Sci. Sports Exerc.* 2009, 41, 1606–1614.
44. Nygaard, H.; Tomten, S.E.; Hostmark, A.T. Slow post meal walking reduces postprandial glycemia in middle-aged women. *Appl. Physiol. Nutr. Metab.* 2009, 34, 1087–1092.
45. Altenburg, T.M.; Rotteveel, J.; Dunstan, D.W.; Salmon, J.; Chinapaw, M.J. The effect of interrupting prolonged sitting time with short, hourly, moderate-intensity cycling bouts on cardio metabolic risk factors in healthy, young adults. *J. Appl. Physiol.* (1985) 2013, 115, 1751–1756.
46. Welle, S. Metabolic responses to a meal during rest and low-intensity exercise. *Am. J. Clin. Nutr.* 1984, 40, 990–994.

**Cite this article as:**

Sadaf Ahmed, Ankita, Medha Kulkarni, Shivakumar S. Harti A Review on Paschata Karma of Ahara and its effect on Postprandial Glycaemia w.s.r. Satapada Gamana. *International Journal of Ayurveda and Pharma Research.* 2020;8(7):89-93.

**Source of support: Nil, Conflict of interest: None Declared**

**\*Address for correspondence**

**Dr Sadaf Ahmed**

PG Scholar,

Department of Swasthavritta,  
All India Institute of Ayurveda,  
New Delhi, India.

Email: [nasimdrsadaf@gmail.com](mailto:nasimdrsadaf@gmail.com)

Disclaimer: IJAPR is solely owned by Mahadev Publications - dedicated to publish quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. IJAPR cannot accept any responsibility or liability for the articles content which are published. The views expressed in articles by our contributing authors are not necessarily those of IJAPR editor or editorial board members.