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Review Article

# A REVIEW ON KOSHTHA AS A FUNCTIONAL NEURO-GASTROINTESTINAL CONCEPT IN AYURVEDA: CLASSICAL PERSPECTIVES AND CLINICAL RELEVANCE

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**ABSTRACT**

Koshtha is a fundamental concept in Ayurveda encompassing the functional domain of digestion, absorption, metabolism, excretion, and systemic physiological regulation. Classical Ayurvedic texts describe Koshtha and Koshthanga in relation to Agni, Dosha predominance, Prakriti, bowel behaviour, and disease manifestation. Based on Dosha dominance, Koshtha is classified into Mridu, Madhyama, and Krura Koshtha, each reflecting variations in digestive capacity, bowel habits, and therapeutic response. Physiological variations such as Dushkoshtha, Samvruta Koshtha, and Ajnata Koshtha indicate disturbances in gastrointestinal and systemic functioning. These extreme variations of Koshtha are generally considered contraindicated for Shodhana interventions or require cautious therapeutic management. A comprehensive review of the classical Ayurvedic understanding of Koshtha and Koshthanga reveals significant functional parallels with contemporary concepts in gastroenterology, enteric neuroscience, gut microbiota research, and gut–brain axis physiology, particularly in the context of personalized medicine. Classical descriptions of Koshtha demonstrate similarities with modern concepts of gastrointestinal motility, enteric neural regulation, autonomic signalling, microbial ecology, and metabolic homeostasis. The Ayurvedic understanding of Vata and Agni shows correspondence with mechanisms governing intestinal motility, digestive function, and neurohumoral regulation. Emerging evidence regarding Prakriti-specific gut microbiota patterns further supports the Ayurvedic concept of individualized physiology. Assessment of Koshtha appears clinically relevant in predicting digestive strength, bowel behaviour, disease susceptibility, drug response, and suitability for Panchakarma procedures. Koshtha represents an integrative physiological concept with potential relevance to modern personalized medicine. Correlating Ayurvedic principles of Koshtha, Agni, and Prakriti with contemporary understanding of the gut microbiome, enteric nervous system, and gut–brain axis may provide a framework for individualized diagnosis and therapeutic planning. Further interdisciplinary research is needed to validate these correlations and expand their clinical applicability.

**Keywords:** Koshtha, Koshthanga, Agni, Prakriti, Gut microbiota, Enteric nervous system, Gut–brain axis, Personalized medicine.

## INTRODUCTION

The concept of Koshtha is a unique concept of Ayurvedic physiology and plays a significant role in clinical practice. Classical Ayurvedic texts describe Koshtha as the internal bodily cavity containing major visceral organs responsible for digestion, metabolism, circulation, respiration, and excretion. Acharya Sushruta includes structures such as Amashaya, Pakwashaya, Mutrashaya, Rudhirashaya Hridaya, Unduka and Phuphusa within Koshtha, emphasizing its role as the functional core of the body.[1] Beyond its anatomical significance, Koshtha represents a dynamic physiological system involved in digestion, absorption, assimilation, and elimination of food, thereby playing a vital role in maintaining health and disease balance.

Ayurveda classifies Koshtha into three types viz.Mridu, Madhyama, and Krura based on Dosha dominance and bowel behaviour. Mridu Koshtha, associated mainly with Pitta Dosha, is characterized by frequent bowel habits and Teekshna Agni. Krura Koshtha, linked with Vata dominance, shows hard bowel habits, Vishamagni and delayed evacuation. Madhya Koshtha reflects balanced Doshas with Samagni and excretory functions. This classification highlights the Ayurvedic concept of individual variability in digestion, metabolism, and therapeutic response.[2]

Koshtha is closely related to Agni, the governing factor of digestion and metabolism. Jatharagni, situated in between the Amashaya and Pakwashaya, is responsible for digestion and transformation of food. Balanced Agni maintains normal bowel and digestive functions, whereas, impaired Agni leads to indigestion, altered bowel habits, and formation of Ama. Thus, the condition of Koshtha reflects the functional state of Agni and Dosha equilibrium.

The concept of Koshtha also has a connection with Prakriti of an individual. Pitta-dominant individuals commonly exhibit Mridu Koshtha, while, Vata-dominant individuals often present Krura Koshtha. Whereas, Kapha-dominant individuals generally possess Mandagni and Madhyama Koshtha. The dominance of particular Dosha in Prakruti hence influences on the type of Koshtha. Dual dominance of Dosha in an individual as Prakruti will be different based on the dominant and recessive Dosha. Therefore, assessment of Koshtha forms an essential component of individualized clinical evaluation in Ayurveda.

Koshtha Pareeksha plays a very important role in planning and execution of the treatment of any disease. It includes evaluation of appetite, digestion, stool consistency, bowel habits, and response to food and medicines.[3] This assessment guides the selection of drugs, dosage, and Panchakarma procedures. Individuals with Mridu Koshtha respond quickly to purgative

therapies, whereas those with Krura Koshtha may require stronger interventions. Moreover, the dosage of Snehapana, Dosage of Shodhana Dravya and potency of Shodhana Dravya are also dependent on the Koshtha. Hence, Koshtha assessment is important for effective therapeutic planning and clinical outcomes.

Recent advances in gastrointestinal physiology, gut microbiota research, and personalized medicine have renewed scientific interest in Ayurvedic concepts related to digestion and constitutional variability. The functional understanding of Koshtha provides a valuable framework for correlating traditional Ayurvedic principles with modern perspectives on digestive health, metabolism, gut ecology, and individualized therapeutics.

**Koshtha from Shareera point of View**

In Ayurveda, Koshtha represents both the anatomical and functional aspects of the gastrointestinal system. It is not limited to the alimentary canal alone but includes the overall processes of digestion, absorption, metabolism, bowel evacuation, and systemic regulation. Classical texts describe Koshtha as comprising structures such as Āmāśaya, Grahaṇī, Pakvāśaya, Yakṛt, and Agnyāśaya. Functionally, Koshtha is governed by Agni, Doṣha balance, Dhātu nourishment, and Mala formation, collectively reflecting digestive homeostasis.[4]

Ayurvedic descriptions of the gastrointestinal tract show close similarity with modern anatomy and physiology. Āmāśaya corresponds to the stomach, where primary digestion and Kapha predominance are observed. Grahaṇī, regarded as the seat of Agni, resembles the duodenum and proximal small intestine responsible for enzymatic digestion and nutrient absorption. Pakvāśaya, dominated by Vāta Doṣa, correlates with the large intestine, where water absorption, fecal formation, microbial fermentation, and bowel motility occur. The Ayurvedic emphasis on Pakvāśaya as the principal seat of Vāta parallels the modern understanding of colonic involvement in autonomic regulation and gut brain communication.

The physiological basis of Koshtha is closely related to Agni, which may be interpreted as the body's digestive and metabolic capacity. Mṛdu Koshtha with Tikṣṇa Agni resembles rapid digestion, increased intestinal secretion, and accelerated bowel transit. Krūra Koshtha with Vishama Agni correlates with delayed gastric emptying, reduced intestinal motility, constipation, and poor digestive efficiency. Madhyama Koshtha reflects balanced Doṣha and Sama Agni, characterized by normal digestion, regular bowel habits, and optimal absorption. These variations resemble modern concepts of differences in gastrointestinal motility, autonomic tone, and neurohormonal regulation.[5]

The enteric nervous system (ENS) provides an important physiological correlation for Koshtha. Ayurveda attributes bowel movement and evacuation to Apāna Vāyu, a subtype of Vāta responsible for downward movement and colonic activity. Similarly, modern physiology explains intestinal motility through ENS regulation, autonomic nervous system activity, neurotransmitters, and smooth muscle coordination. Increased sympathetic activity causing constipation resembles Krūra Koshtha, whereas enhanced parasympathetic activity promoting bowel movements resembles Mṛdu Koshtha.[6,7]

Doṣha based functions within Koshtha also parallel gastrointestinal secretory and mucosal mechanisms. Pitta Doṣha corresponds to digestive enzymes, bile acids, gastric acid, and metabolic transformation, while Kapha Doṣha reflects mucus production, lubrication, and mucosal protection. Excess Pitta may produce hyperacidity and loose stools, whereas Kapha predominance may lead to sluggish digestion and heaviness. Thus, Ayurvedic descriptions of Doṣha interaction represent an integrated understanding of digestive secretion, metabolism, and mucosal integrity.

Recent advances in gut microbiome research further support the functional concept of Koshtha. The intestinal microbiota regulates digestion, immunity, metabolism, neurotransmitter production, and bowel motility. Ayurveda recognized the importance of digestive balance and proper Mala formation through the concepts of Agni and Koshtha. Mṛdu Koshtha may correlate with rapid transit and increased microbial fermentation, while Krūra Koshtha may be associated with delayed transit and altered microbial balance. Madhyama Koshtha represents a stable and balanced gastrointestinal state.[8,9]

Clinically, assessment of Koshtha is important for determining diet, drug selection, dosage, and suitability for Panchakarma therapies. Modern medicine similarly evaluates bowel habits, motility patterns, and digestive function before planning gastrointestinal treatment. Functional disorders such as irritable bowel syndrome, chronic constipation, and functional dyspepsia demonstrate similarities with different Vikruti of Koshtha.

**Koshtha and Koshthanga Relation**

The concepts of Koshtha and Koshthanga described by Acharya Sushruta represent an advanced Ayurvedic understanding of internal anatomy and physiology. Koshtha refers to the central body cavity containing vital visceral organs, while Koshthanga denotes the individual organs situated within it. Together, they form an integrated physiological system responsible for digestion, metabolism, circulation, respiration, and excretion. These functions are regulated through the coordinated action of Doṣha, Agni, Dhātu, and Mala. Modern anatomy and physiology show close parallels through the concepts of the thoracic and abdominal cavities, gastrointestinal physiology, hepatobiliary function, neuroenteric regulation, and systemic metabolic integration.

Sushruta's description of Koshtha includes both thoracic and abdominal organs such as Hridaya (heart), Phuphusa (lungs), Āmāśaya (stomach), Pakvāśaya (large intestine), Mutrashaya (urinary bladder), and Rudhirashaya (liver and spleen). This demonstrates a holistic view in which digestion, circulation, respiration, and metabolism are interconnected physiological processes. Modern medicine similarly recognizes the close relationship between gastrointestinal, cardiovascular, respiratory, endocrine, and nervous systems in maintaining homeostasis.

Among the Koshthangas, Āmāśaya corresponds to the stomach and upper gastrointestinal tract, where primary digestion, enzymatic activity, and mucosal protection occur. Grahaṇī and Agnyāśaya functionally resemble the small intestine, pancreas, and hepatobiliary system responsible for digestion, absorption, and metabolic transformation. Pakvāśaya correlates with the large intestine and is considered the principal seat of Vāta Doṣa, particularly Apāna Vāyu, governing bowel movement and elimination. This closely parallels the modern role of the colon and enteric nervous system in regulating intestinal motility, water absorption, microbial activity, and gut–brain communication.

Mutrashaya reflects the urinary system involved in fluid balance and waste elimination, while Rudhirashaya corresponds to the liver and spleen, which are essential for metabolism, detoxification, immunity, and hematological regulation. Hridaya and Phuphusa indicate the integration of circulatory and respiratory physiology within Koshtha, emphasizing the

Ayurvedic understanding that proper digestion and metabolism depend on adequate circulation, oxygenation, and systemic balance.

The physiological relationship between Koshtha and Agni further highlights the functional significance of these concepts.[5,6] Agni represents the body's digestive and metabolic capacity, comparable to digestive enzymes, metabolic pathways, hormonal regulation, and cellular bioenergetics. Balanced Agni maintains efficient digestion and tissue nourishment, whereas impaired Agni leads to indigestion, metabolic dysfunction, and formation of Ama.

**Agni–Prakruti-Koshtha-Microbiota Relation**

The relationship between Agni, Prakriti, gut microbiota, and Koshtha represents an important area in integrative medicine and Ayurgenomics. Ayurveda explains that Prakriti is the constitutional makeup of an individual determined by the predominance of Vāta, Pitta, and Kapha Doṣhas, which influence digestion, metabolism, immunity, psychological traits, and disease susceptibility. Modern microbiome research similarly recognizes that each individual possesses a unique gut microbial ecosystem that regulates digestion, metabolism, immune modulation, and intestinal homeostasis. Studies demonstrating distinct microbial patterns among different Prakriti types provide scientific support for the Ayurvedic concept of constitutional individuality.

The gut microbiota consists of trillions of microorganisms involved in digestion, vitamin synthesis, short-chain fatty acid production, maintenance of intestinal integrity, and regulation of inflammatory responses.[8,9] Ayurveda similarly emphasizes the importance of balanced Agni for proper digestion, metabolism, tissue nourishment, and healthy Mala formation. Variations in gut microbiota among different Prakriti groups suggest that the constitutional digestive patterns described in Ayurveda may reflect underlying differences in microbial ecology and metabolism.

Pitta Prakriti individuals generally possess Tikṣṇāgni, characterized by strong digestion and active metabolism. Studies have shown increased abundance of beneficial butyrate-producing bacteria such as Blautia species and *Butyricicoccus pullicaecorum* in Pitta individuals. These microorganisms support intestinal health, maintain mucosal integrity, and reduce inflammation, correlating with the efficient digestion and metabolic activity described in Ayurveda. However, excessive Pitta and increased metabolic activity may also predispose to inflammatory bowel conditions and hyperacidity.

Kapha Prakriti individuals are associated with Manda Agni, sluggish digestion, and slower metabolism. Increased abundance of *Prevotella copri* observed in Kapha individuals has been linked with obesity, insulin resistance, and altered carbohydrate metabolism. These findings support the Ayurvedic description of Kapha individuals as being prone to metabolic disorders, obesity, and impaired digestion.

Vāta Prakriti individuals commonly exhibit Viṣamāgni, characterized by irregular digestion, dryness, bloating, and fluctuating bowel habits. Microbial enrichment of species such as *Bacteroides vulgatus*, *Roseburia hominis*, and *Eubacterium rectale* has been observed in Vāta individuals. These microbial patterns influence colonic fermentation, intestinal motility, and gut–brain axis activity, which may explain the irregular digestive and bowel behaviour described in Vāta predominance.[10,11]

Modern microbiome research demonstrates that microbial metabolites and inflammatory mediators directly influence intestinal motility, gut permeability, stool consistency, and enteric nervous system activity. Therefore, Koshtha may be understood as the functional clinical expression of interactions between Agni, host constitution, and gut microbiota.

The concept of Ama also gains relevance through microbiome science. Ayurveda explains that impaired Agni leads to incomplete digestion and formation of Ama, which contributes to disease development. Similarly, dysbiosis and altered intestinal permeability result in inflammatory metabolites and systemic inflammation in modern medicine. This suggests a close relationship between impaired Agni, microbial imbalance, and metabolic dysfunction.

The integration of Agni, Prakriti, microbiota, and Koshtha has important implications for personalized medicine.[14] Ayurveda advocates individualized Ahara, Vihara, Panchakarma, and therapeutic interventions according to constitutional and digestive variability, while modern precision medicine similarly recognizes microbial individuality in therapeutic response. Combining Ayurvedic assessment with microbiome analysis may therefore provide a scientific basis for preventive healthcare, personalized nutrition, and integrative therapeutic strategies.

**DISCUSSION**

The Ayurvedic concept of Koshtha extends beyond the anatomical gastrointestinal tract and may be understood as a functional regulatory system integrating digestion, metabolism, motility, sensory regulation, and excretion. Classical descriptions of normal and abnormal Koshtha states, including Dushkoshtha, Samvruta Koshtha, and Ajnata Koshtha, indicate disturbances not only in bowel habits but also in coordinated gastrointestinal functioning.[8] In modern biomedical terms, these conditions may correspond to alterations in gut motility, autonomic regulation, enteric nervous system activity, and gut–brain axis communication.

Ayurveda considers Vata Doṣha, particularly Apāna Vāyu, as the principal regulator of movement, neural activity, and excretion. Its primary seat, Pakvāśaya, corresponds anatomically to the large intestine, which contains a major portion of the enteric nervous system and gut microbiota. The enteric nervous system independently regulates intestinal motility, secretion, and bowel coordination, while the vagus nerve mediates bidirectional communication between the gut and brain. These functions closely resemble the Ayurvedic understanding of Vata-regulated Koshtha physiology.

Krūra Koshtha, characterized by constipation, dryness, delayed evacuation, and irregular digestion, may reflect impaired autonomic regulation, altered enteric nervous system activity, or dysregulated gut brain signalling. Similarly, Viṣamāgni associated with Vata imbalance may correlate with inconsistent intestinal transit and stress related gastrointestinal dysfunction. Modern research has shown that stress, anxiety, autonomic imbalance, and altered vagal tone significantly influence bowel motility, microbial composition, and conditions such as irritable bowel syndrome and functional constipation.[12,13]

The concept of Dushkoshtha may represent pathological bowel states involving impaired digestion, disturbed peristalsis, intestinal inflammation, dysbiosis, or altered neuromuscular coordination. Samvruta Koshtha, indicating an obstructed state, may correspond to functional bowel obstruction, intestinal spasm, impaired motility, or suppression of normal evacuation reflexes.

Likewise, Ajnata Koshtha, characterized by unpredictable bowel behaviour and variable response to medicines, may correlate with fluctuating autonomic activity, gut hypersensitivity, and microbiota-related variability seen in functional gastrointestinal disorders.

Recent advances in gut brain axis research further support these interpretations. Bidirectional communication between the gut and nervous system occurs through neural, hormonal, immune, and microbial pathways. Gut microbiota influence motility, inflammation, neurotransmitter production, and intestinal permeability, thereby affecting both digestive and psychological functions. Ayurveda similarly emphasizes the interrelationship between Vata, Agni, Koshtha, and mental state, reflecting an early understanding of neuro gastrointestinal regulation.

Thus, Koshtha may be interpreted as a comprehensive functional assessment of gastrointestinal physiology involving digestion, motility, autonomic balance, enteric neurophysiology, and systemic homeostasis. Although direct equivalence between Ayurvedic and modern concepts should be approached cautiously, the observed functional similarities suggest that Koshtha assessment may represent an early clinical interpretation of gut–brain interaction and individualized gastrointestinal physiology. Further interdisciplinary research integrating Ayurveda, microbiome science, and neuro gastroenterology may help establish the scientific relevance of these classical concepts in personalized and integrative medicine.

The movement of Dosha from Koshtha to Shakha leads to a manifestation of disease. Whereas, the treatment which facilitates the movement of Dosha from Shaka to Koshtha enables body to get prepared for elimination thus, bringing the physiological status to normalcy. The movement of Doṣhas between Śākhā and Koṣṭha can be interpreted in modern physiology as a bidirectional shift in functional activity between peripheral tissues and the central gut–metabolic axis. Śākhā represents peripheral compartments such as skin, adipose tissue, joints, and extracellular spaces where pathological processes may manifest as inflammation, immune activation, or metabolic deposition. Koṣṭha, in contrast, corresponds to the central gastrointestinal–hepato-metabolic system, including the gut, liver, and associated neuroendocrine and microbial interfaces that regulate digestion, metabolism, and internal homeostasis. The movement from Śākhā to Koṣṭha may be understood as a mobilization phase in which stored metabolites, inflammatory mediators, and immune components are mobilized from peripheral tissues into circulation and directed toward hepatic and intestinal pathways for processing and elimination, facilitated by lymphatic drainage, vascular transport, autonomic modulation, and changes in metabolic activity. Conversely, movement from Koṣhṭha to Śākhā may represent systemic dissemination of gut-derived inflammatory signals, microbial metabolites, and metabolic by-products into peripheral circulation, leading to tissue-specific deposition and disease expression, as seen in conditions linked to gut permeability, dysbiosis, chronic inflammation, and metabolic overload. Thus, the Śākhā–Koṣṭha axis can be viewed as a dynamic neuro–immuno–metabolic continuum linking central digestive regulation with peripheral tissue responses, offering a functional framework for understanding disease progression and therapeutic mobilization in integrative physiology.[15,13]

An important clinical application of Koshtha assessment in Ayurveda lies in individualized therapeutic planning, particularly in medicine prescription and Panchakarma procedures. Classical Ayurvedic physicians emphasized Koshtha Pariksha before selecting drugs, dosage, formulation, and route of administration. Individuals with Mṛdu Koshtha generally respond rapidly to purgative and evacuative therapies and therefore require milder medicines or lower doses, whereas those with Krūra Koshtha often require stronger formulations, higher doses, prolonged Snehana or repeated interventions to achieve adequate purification. Similarly, Madhyama Koshtha individuals usually exhibit moderate responsiveness and tolerate balanced therapeutic measures. Assessment of Koshtha also guides the selection and execution of Śhodhana procedures such as Vamana, Virechana, and Basti by predicting bowel sensitivity, drug absorption, evacuation response, and tolerance to purification therapies.[14] In modern terms, this reflects an individualized approach based on variations in gastrointestinal motility, metabolic capacity, gut sensitivity, microbiota composition, and drug responsiveness. Thus, Koshtha assessment represents an early Ayurvedic model of personalized medicine, where therapeutic decisions are tailored according to the patient's constitutional and functional gastrointestinal profile to improve efficacy, safety, and clinical outcomes.

## CONCLUSION

Koshtha is a fundamental Ayurvedic concept representing the functional state of digestion, metabolism, bowel activity, and systemic homeostasis. Its close association with Agni, Prakriti, and Doṣha balance highlights its importance in disease manifestation, therapeutic response, and individualized healthcare. Contemporary advances in gut microbiota research, enteric neurophysiology, and gut–brain axis science provide meaningful correlations that support the physiological relevance of Koshtha.

Assessment of Koshtha plays a crucial role in diagnosis, drug selection, dosage determination, and planning of Panchakarma therapies, particularly Śhodhana procedures. Variations in Koshtha reflect differences in gastrointestinal motility, metabolic activity, microbial ecology, and neuro gastrointestinal regulation, making it a valuable tool for personalized treatment planning. Integrating the Ayurvedic concept of Koshtha with modern microbiome and neuro gastroenterology research may help establish evidence-based approaches for integrative and personalized medicine.

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