



Research Article

Agni and Metabolism: An Ayurvedic–Physiological Correlation

Prof. Dr. Samir Sapkota ^{1*}, Dr. Ravinder Singh ²

¹ Professor & HOD, Department of Samhita and Siddhanta, IA Ayurvedic Medical College, USTM, Meghalaya, India

² Associate Professor & HOD, Department of Kriya Sharir, IA Ayurvedic Medical College, USTM, Meghalaya, India

Corresponding Author: * Prof. Dr. Samir Sapkota

DOI: <https://doi.org/10.5281/zenodo.22023144>

Abstract

Ayurveda describes Agni as a fundamental physiological principle responsible for digestion, transformation, assimilation, metabolism and maintenance of life. Although the word Agni is commonly translated as “digestive fire,” its classical significance is considerably broader. It encompasses the transformation of food at the gastrointestinal level, processing of elemental components and tissue-specific utilization of nutrients. The classical classification of Agni into Jatharagni, Bhutagni and Dhatvagni provides a hierarchical model of physiological transformation. **Aim and Objectives:** The present review aims to critically examine the Ayurvedic concept of Agni and establish a scientifically cautious functional correlation between Agni and contemporary concepts of digestion, absorption, intermediary metabolism, tissue metabolism and metabolic homeostasis.

Materials and Methods: A narrative conceptual review was undertaken using classical Ayurvedic sources, particularly Charaka Samhita, Sushruta Samhita and Ashtanga Hridaya, together with contemporary literature concerning gastrointestinal physiology, metabolism, biochemistry, nutrition, circadian physiology and metabolic health. Recent reviews published during 2025–2026 were also considered to identify current research perspectives and knowledge gaps.

Results and Discussion: Ayurveda describes thirteen principal Agnis: one Jatharagni, five Bhutagni and seven Dhatvagni. Jatharagni may be functionally correlated with the integrated processes of gastrointestinal digestion, digestive secretions, enzymatic activity and nutrient processing. Bhutagni represents a subsequent conceptual level of transformation of nutrient components, whereas Dhatvagni represents tissue-specific transformation and utilization. The four states of Jatharagni—Samagni, Mandagni, Tikshnagni and Vishamagni—provide a framework for understanding variations in digestive function. Disturbance of Agni is traditionally associated with improper digestion and formation of Ama. Contemporary metabolic physiology similarly recognizes that disturbances in nutrient processing, hormonal regulation, cellular metabolism and energy homeostasis may contribute to disease.

Conclusion: Agni represents a multidimensional Ayurvedic model of biological transformation that extends from digestion to tissue nourishment. Although direct equivalence between Agni and any single modern physiological mechanism cannot presently be established, meaningful functional correlations can be explored. Development of validated Agni assessment tools and correlation with metabolic biomarkers, metabolomics, gut microbiome parameters and physiological measurements may provide a promising direction for future research

Manuscript Information

- ISSN No: 3139-6313
- Received: 13-07-2026
- Accepted: 15-08-2026
- Published: 20-08-2026
- IJCRP:1(4); 2026: 146-155
- ©2026, All Rights Reserved
- Plagiarism Checked: Yes
- Peer Review Process: Yes

How to Cite this Article

Sapkota S, Singh R. Agni and metabolism: an Ayurvedic–physiological correlation. Int. J. Creative Res. Publ. 2026;1(4):146-155.

Access this Article Online



www.ijcrp.in

KEYWORDS: Agni, Jatharagni, Bhutagni, Dhatvagni, Metabolism, Digestion, Kriya Sharir, Ayurveda, Ama, Homeostasis.

1. INTRODUCTION

Ayurveda is a holistic system of medicine in which maintenance of health depends upon equilibrium between Dosha, Dhatu, Mala and the functional components responsible for physiological transformation. Among these factors, Agni occupies a central position.

The human body continuously receives substances from the external environment in the form of food, water and other nutritional inputs. These substances cannot directly become part of the body. They must undergo a series of transformations before they can be absorbed, assimilated, transported and utilized. Ayurveda conceptualizes this transformative process through the principle of Agni.

Agni therefore extends beyond the simple process of digestion. It represents the capacity of the body to transform substances into forms that can support physiological function.

Modern physiology describes a comparable sequence involving:

Ingestion → Digestion → Absorption → Transport → Cellular utilization → Energy production → Tissue synthesis → Waste elimination

Modern metabolism is also a dynamic process involving thousands of biochemical reactions regulated by enzymes, hormones, organs, cells and genetic mechanisms.

Recent Ayurvedic literature has increasingly explored the relationship between Agni and modern metabolic physiology. A 2026 scoping review identified Agni as a multidimensional concept involving digestion, metabolism and tissue transformation, while also emphasizing that objective scientific characterization remains insufficient.

Therefore, studying Agni from the perspective of Kriya Sharir provides an important opportunity to examine Ayurvedic physiology through a contemporary scientific framework.

2. Concept of Agni in Ayurveda

The term Agni literally denotes the principle of transformation. In Ayurvedic physiology, it is responsible for the processing of food and other substances within the body.

Agni is associated with:

- Ahara Pachana
- Sara-Kitta Vibhajana
- Absorption and assimilation
- Dhatu Poshana
- Metabolic transformation
- Energy generation
- Maintenance of physiological equilibrium
- Formation and maintenance of healthy tissues

Thus, Agni can be considered a functional principle of transformation and utilization.

The classical concept does not describe Agni as a single anatomical organ. Rather, Agni represents a functional phenomenon operating at different levels of the organism.

This distinction is important while comparing Agni with modern physiology.

3. Classification of Agni

Ayurveda describes thirteen principal Agnis:

One Jatharagni

The principal digestive Agni.

Five Bhutagni

1. Parthiva Bhutagni
2. Apya Bhutagni
3. Agneya Bhutagni
4. Vayavya Bhutagni
5. Nabhasa Bhutagni

Seven Dhatvagni

1. Rasagni
2. Raktagni
3. Mamsagni
4. Medagni
5. Asthyagni
6. Majjagni
7. Shukragni

This classification indicates that Ayurvedic metabolism is not considered to be limited to the gastrointestinal tract.

4. Jatharagni

Jatharagni is the principal Agni responsible for the initial transformation of ingested food.

It is traditionally considered the foundation upon which the proper functioning of other Agnis depends.

The primary functions attributed to Jatharagni include:

- Digestion of food
- Transformation of food
- Separation of useful and waste components
- Production of nutritive material
- Support of subsequent Dhatu nourishment

From a modern physiological perspective, several processes can be discussed in relation to Jatharagni:

- gastric secretion,
- pancreatic secretion,
- intestinal enzyme activity,
- bile-mediated digestion,
- gastrointestinal motility,
- nutrient absorption,
- intestinal barrier function and
- neuroendocrine regulation of digestion.

However, Jatharagni should not be equated with gastric acid, pancreatic enzymes or any single organ.

It is more appropriate to understand Jatharagni as a functional integrative concept encompassing the overall capacity for digestion and initial nutrient transformation.

5. States of Jatharagni

Ayurveda describes four major functional states of Agni:

5.1 Samagni

Samagni represents balanced Agni.

It is characterized by:

- proper appetite,
- appropriate digestion,
- normal bowel function,
- adequate nutritional status,
- stable energy and
- physiological equilibrium.

From the modern perspective, Samagni may be explored in relation to digestive and metabolic homeostasis.

5.2 Mandagni

Mandagni refers to diminished digestive capacity.

Possible clinical features include:

- reduced appetite,
- heaviness,
- bloating,
- delayed digestion,
- excessive mucus-like symptoms,
- lethargy and
- impaired digestion.

A modern research approach could investigate whether individuals classified as Mandagni demonstrate measurable differences in:

- gastrointestinal transit,
- resting metabolic rate,
- glucose regulation,
- lipid profile,
- inflammatory markers or
- gut microbiome composition.

However, Mandagni should not be automatically equated with obesity or diabetes.

5.3 Tikshnagni

Tikshnagni represents excessively intense digestive activity.

Potential manifestations include:

- excessive hunger,
- rapid digestion,
- increased requirement for food,
- burning sensations and
- vulnerability to depletion if adequate nutrition is not supplied.

A modern investigation could explore relationships with:

- appetite regulation,
- energy expenditure,
- gastric emptying,
- endocrine regulation and
- metabolic rate.

5.4 Vishamagni

Vishamagni denotes irregular digestive function.

Features may include:

- irregular appetite,
- variable digestion,
- bloating,
- constipation alternating with loose stools,
- abdominal discomfort and
- inconsistent digestive response.

This concept may provide an interesting framework for investigating functional gastrointestinal disorders and interactions between diet, stress, autonomic regulation and gut microbiota.

6. Bhutagni

After the initial transformation associated with Jatharagni, Ayurveda describes the action of Bhutagni. Five Bhutagni are described in accordance with the five Mahabhuta. The concept suggests that the elemental components of ingested food undergo further transformation so that they become suitable for physiological utilization.

From a contemporary perspective, this may be discussed in relation to:

- biochemical transformation,
- nutrient processing,
- hepatic metabolism,
- molecular modification,
- substrate utilization and
- systemic metabolic pathways.

Recent literature has explored functional relationships between Bhutagni and biochemical/metabolic transformation, including hepatic processes.

Nevertheless, such comparisons remain conceptual and require experimental validation.

7. Dhatvagni

Dhatvagni represents tissue-specific metabolic activity.

The seven Dhatvagni correspond to the seven Dhatu:

Dhatvagni	Associated Dhatu	Broad Functional Interpretation
Rasagni	Rasa	Nutrient/fluid tissue transformation
Raktagni	Rakta	Blood-related transformation
Mamsagni	Mamsa	Muscle tissue metabolism
Medagni	Meda	Adipose/lipid-related metabolism
Asthyagni	Asthi	Bone-related metabolism
Majjagni	Majja	Marrow/neural conceptual domain
Shukragni	Shukra	Reproductive tissue/metabolism

Modern physiology recognizes that different tissues have distinct metabolic characteristics.

For example:

- skeletal muscle has high glucose and fatty-acid utilization,
- adipose tissue has important roles in lipid storage and endocrine signaling,
- liver regulates carbohydrate, lipid and protein metabolism,
- bone undergoes continuous remodeling,
- reproductive tissues have specialized metabolic requirements.

Thus, Dhatvagni provides an interesting Ayurvedic conceptual framework for tissue-specific metabolism.

8. Agni and Digestion

Modern digestion involves a coordinated sequence:

Ingestion → Mechanical digestion → Chemical digestion → Enzymatic digestion → Absorption → Transport

Major physiological components include:

Oral phase

Mastication and salivary digestion initiate processing.

Gastric phase

Hydrochloric acid, pepsin and gastric motility contribute to digestion.

Intestinal phase

Pancreatic enzymes and bile facilitate digestion and absorption.

Small intestine

Carbohydrates, proteins, lipids, vitamins and minerals undergo absorption through specialized mechanisms.

Large intestine

Water and electrolyte absorption and microbial fermentation occur.

The broad physiological function represented by Jatharagni can therefore be studied through these integrated processes.

9. Agni and Enzymatic Activity

Enzymes are biological catalysts responsible for facilitating biochemical reactions.

Important digestive enzymes include:

- amylase,
- pepsin,
- trypsin,
- chymotrypsin,
- lipase,
- lactase and
- various brush-border enzymes.

Agni cannot scientifically be identified with any one enzyme. Instead, enzymatic activity may represent one measurable component of the broader physiological transformation that Ayurveda conceptualizes as Agni.

Therefore:

Agni ≠ digestive enzyme

but:

Digestive enzyme activity may be one measurable component relevant to studying Agni.

This distinction is essential for scientifically responsible Ayurvedic research.

10. Agni and Metabolism

Metabolism consists broadly of:

Catabolism

The breakdown of complex molecules to generate energy or metabolic intermediates.

Examples include:

- glycolysis,
- β-oxidation,
- amino acid catabolism.

Anabolism

The synthesis of complex molecules.

Examples include:

- protein synthesis,
- glycogen synthesis,
- lipid synthesis,
- tissue formation.

Energy metabolism

ATP production and utilization.

The Ayurvedic concept of Agni similarly emphasizes transformation, utilization and nourishment.

A conceptual relationship can therefore be represented as:

Agni → Transformation → Assimilation → Tissue nourishment → Functional integrity

while modern physiology can be represented as:

Nutrients → Biochemical reactions → Energy/metabolic intermediates → Biosynthesis → Tissue function

The two systems are not identical, but they address overlapping functional domains.

11. Agni and Cellular Metabolism

Cellular metabolism occurs through highly regulated biochemical pathways.

Major pathways include:

- glycolysis,
- citric acid cycle,
- oxidative phosphorylation,
- fatty-acid oxidation,
- amino-acid metabolism,
- glycogenesis,
- gluconeogenesis and
- lipogenesis.

Mitochondria play a central role in aerobic energy production.

Dhatvagni can be conceptually compared with the tissue-specific capacity for nutrient transformation and utilization, while mitochondrial metabolism represents one specific component of modern cellular energy metabolism.

Therefore:

Dhatvagni should not be considered synonymous with mitochondria.

Rather, mitochondrial function may provide one possible experimental domain through which aspects of cellular metabolism associated conceptually with Dhatvagni can be investigated.

12. Agni and Metabolic Homeostasis

Homeostasis refers to the ability of an organism to maintain relatively stable internal conditions.

Metabolic homeostasis involves regulation of:

- blood glucose,
- energy availability,
- lipid metabolism,
- amino-acid metabolism,
- body temperature,
- fluid balance and
- hormonal signaling.

Important regulators include:

- insulin,
- glucagon,
- thyroid hormones,
- cortisol,
- catecholamines,
- gastrointestinal hormones and
- adipose-derived signalling molecules.

Samagni can conceptually be discussed in relation to physiological metabolic balance.

This does not mean that Samagni is a single biochemical state. Rather, it may represent an Ayurvedic clinical construct describing an overall state of appropriate digestive and metabolic function.

13. Agni and Ama

Ama is traditionally associated with impaired transformation and improper processing.

In Ayurvedic pathophysiology:

Agnimandya → Improper digestion → Ama formation → Srotodushti → Disease manifestation

Modern medicine recognizes several pathological processes associated with metabolic dysregulation, including:

- oxidative stress,
- chronic low-grade inflammation,
- altered gut permeability,

- abnormal lipid accumulation,
- insulin resistance and
- altered microbial metabolites.

These phenomena may provide areas for investigating Ama scientifically.

However, Ama should not be directly labelled as a modern “toxin.”

It is more scientifically appropriate to investigate Ama as a multidimensional Ayurvedic pathological construct.

14. Agni and Gut Microbiota

The gut microbiome plays a significant role in:

- digestion,
- fermentation,
- short-chain fatty acid production,
- bile-acid metabolism,
- immune regulation,
- intestinal barrier function and
- host metabolism.

This provides an important research interface between Ayurveda and modern science.

The gut microbiome should not be equated with Jatharagni. Rather, microbial metabolism may represent one component of the complex biological environment involved in digestion and metabolism.

Future studies can investigate whether Ayurvedic Agni classifications are associated with reproducible differences in:

- microbial diversity,
- microbial metabolites,
- short-chain fatty acids,
- intestinal permeability and
- gastrointestinal symptoms.

15. Agni and Gut–Liver Axis

The gut and liver are closely interconnected through portal circulation, bile acids, immune pathways and microbial metabolites.

The gut–liver axis influences:

- nutrient metabolism,
- lipid metabolism,
- immune responses,
- bile-acid signaling and
- systemic inflammation.

A 2026 review has explored functional intersections between Agni, Ama and gut–liver physiology while emphasizing that direct scientific correlations remain underdeveloped.

This makes the gut–liver axis an important future domain for Agni research.

16. Agni and Circadian Rhythm

Modern chronobiology demonstrates that metabolic processes are influenced by biological clocks.

Circadian rhythms influence:

- insulin sensitivity,
- glucose metabolism,
- gastrointestinal function,
- hormone secretion,
- appetite,
- sleep and
- energy metabolism.

Ayurveda emphasizes:

- Dinacharya,
- Ritucharya,
- Kala,
- appropriate timing of food and
- individualized dietary practices.

Recent Ayurvedic literature has proposed Agni as part of a conceptual chronometabolic framework and has discussed relationships between meal timing, circadian physiology and metabolism.

This area provides a particularly promising bridge between Ayurveda and modern chrononutrition.

17. Agni and Nutrition

Ayurveda emphasizes not only what is eaten but also:

- quantity,
- quality,
- timing,
- compatibility,
- individual suitability,
- digestive capacity and
- method of consumption.

The concept of Agni Bala therefore provides a potential framework for personalized nutrition.

From a contemporary perspective, nutritional requirements vary according to:

- age,
- sex,
- body composition,
- physical activity,
- metabolic status,
- disease conditions and
- circadian pattern.

Future research may investigate whether Agni-based dietary personalization produces measurable differences in metabolic outcomes.

18. Agni and Personalized Medicine

Modern personalized medicine attempts to tailor interventions according to individual characteristics.

Ayurveda has traditionally emphasized individual variability through concepts such as:

- Prakriti,
- Agni,
- Satmya,
- Bala,
- Vaya and
- Ahara Shakti.

Agni could therefore potentially contribute to an Ayurvedic personalized nutrition framework.

A proposed model is:

Prakriti + Agni + Ahara + Vihara + Kala → Individual metabolic phenotype

This hypothesis requires prospective clinical validation.

19. Functional Correlation with Modern Physiology

Ayurvedic Concept	Functional Domain	Possible Modern Research Domain
Jatharagni	Primary digestion	GI digestion, enzymes, secretion, and motility
Bhutagni	Nutrient transformation	Biochemical and hepatic metabolism
Dhatvagni	Tissue-level transformation	Tissue-specific metabolism
Samagni	Balanced function	Metabolic homeostasis
Mandagni	Reduced digestive function	Digestive/metabolic dysfunction
Tikshnagni	Excessive digestive activity	Appetite and energy metabolism
Vishmaggni	Irregular digestion	GI variability, autonomic and circadian regulation
Ama	Improperly processed material	Inflammation, metabolic dysregulation, and microbial metabolites

This table represents functional hypotheses, not established one-to-one biomedical equivalences.

20. Agni and Metabolic Disorders

Disturbed metabolic regulation is associated with several contemporary health problems.

Potential areas for Agni-related research include:

Obesity

Could Agni classification correlate with energy intake, energy expenditure and body composition?

Type 2 diabetes

Could Agni status correlate with insulin sensitivity or glycemic control?

Dyslipidemia

Could Medagni status show measurable relationships with lipid metabolism?

Metabolic syndrome

Could a multidimensional Agni assessment identify individuals at higher metabolic risk?

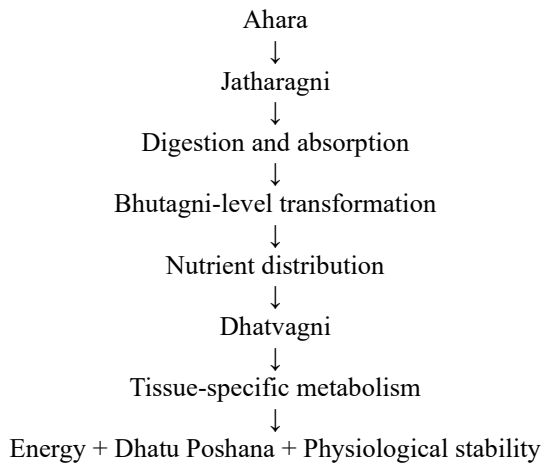
Functional gastrointestinal disorders

Could Vishmaggni classification correlate with symptoms, motility or microbiome characteristics?

These are research hypotheses and should not be presented as established clinical equivalences.

21. Proposed Agni–Metabolism Model

A conceptual model can be proposed:



The model emphasises that Ayurvedic metabolism is hierarchical and systemic.

22. Agni and Energy Metabolism

Modern physiology describes energy metabolism through ATP production and utilisation.

Major energy substrates include:

- carbohydrates,
- fatty acids and
- amino acids.

These substrates undergo biochemical transformation to generate energy.

Ayurveda does not describe ATP, mitochondria or oxidative phosphorylation in modern biochemical terminology. Therefore, direct equivalence should not be claimed.

Nevertheless, the broader concept of transformation of nutritional material into usable biological resources provides an area of functional comparison.

23. Agni and Exercise

Physical activity influences:

- energy expenditure,
- glucose uptake,
- insulin sensitivity,
- mitochondrial function,
- muscle metabolism and
- cardiovascular fitness.

From an Ayurvedic perspective, appropriate Vyayama is traditionally associated with maintenance of Agni and physiological strength.

Recent literature has proposed integrative research linking Agni, exercise physiology, gut microbiota and metabolic health, including the possibility of developing multidimensional Agni indices.

This could be developed into a future clinical research model.

24. Agni and Ageing

Ageing is associated with changes in:

- basal metabolic rate,
- muscle mass,
- mitochondrial function,
- endocrine regulation,
- digestive function and
- nutrient utilization.

Ayurveda recognizes age-related changes in physiological strength and digestive capacity.

A future study could investigate:

Age → Agni status → Metabolic parameters → Tissue nourishment

This could help determine whether Agni assessment provides additional information beyond conventional physiological measurements.

25. Agni Assessment: Need for Standardization

One of the major challenges in Agni research is the absence of a universally accepted objective measurement system.

A future Agni Assessment Index could potentially incorporate:

Subjective parameters

- appetite,
- hunger,
- meal tolerance,
- digestion time,
- bloating,
- bowel pattern.

Anthropometric parameters

- BMI,
- waist circumference,
- body composition.

Physiological parameters

- resting metabolic rate,
- heart rate,
- gastrointestinal motility.

Biochemical parameters

- fasting glucose,
- HbA1c,
- lipid profile,
- liver enzymes,
- selected inflammatory markers.

Advanced parameters

- metabolomics,
- microbiome analysis,
- hormonal profile.

Such an index would require rigorous validation.

26. Proposed Research Framework

A future observational study could classify participants into:

Samagni / Mandagni / Tikshnagni / Vishamagni and assess:

- BMI,
- waist circumference,
- blood pressure,
- fasting glucose,
- HbA1c,
- lipid profile,
- liver function,
- thyroid function,
- inflammatory biomarkers,
- dietary pattern,
- physical activity,
- sleep,
- gut symptoms and
- selected microbiome parameters.

Statistical analysis could then determine whether Agni categories show reproducible associations with metabolic parameters.

27. Research Gap

Recent literature indicates increasing interest in Agni–metabolism correlation, but significant gaps remain.

Major research gaps include:

1. Lack of standardized Agni assessment tools.
2. Limited inter-rater reliability of Agni assessment.
3. Lack of objective biomarkers.
4. Predominance of conceptual reviews.
5. Limited large-scale clinical studies.
6. Limited longitudinal research.
7. Insufficient metabolomic studies.
8. Limited microbiome research.
9. Lack of standardized definitions of Mandagni, Tikshnagni and Vishamagni.
10. Risk of inappropriate direct equivalence with modern biomedical entities.

and Gut Microbiome

Microbial diversity and metabolites could be studied in relation to Agni status.

4. Agni and Metabolic Syndrome

A prospective clinical study could investigate whether Agni status is associated with metabolic syndrome risk.

5. Agni and Circadian Biology

Meal timing and circadian metabolic parameters may be investigated.

A 2026 scoping review specifically noted that Agni mechanisms remain largely conceptual and that objective characterization is still limited.

28. Future Research Directions

The following research areas are recommended:

1. Development of an Agni Assessment Scale

A validated questionnaire based on classical Lakshana should be developed.

2. Agni and Metabolomics

Metabolomic profiles could be compared among different Agni phenotypes.

3. Agni

6. Agni and Prakriti

The interaction between Prakriti and Agni could be studied.

7. Agni and Exercise

Vyayama and Agni could be studied through metabolic and physiological parameters.

8. Agni and Ageing

Age-related changes in Agni could be correlated with metabolic health.

29. DISCUSSION

Agni occupies a unique position in Ayurvedic physiology because it provides a unifying explanation for digestion, transformation and tissue nourishment.

The classification of Agni into Jatharagni, Bhutagni and Dhatvagni demonstrates that Ayurvedic physiology recognizes multiple levels of transformation.

Modern physiology similarly describes metabolism at multiple levels:

Organ → Tissue → Cell → Organelle → Molecular pathway

This hierarchical similarity provides an important basis for interdisciplinary investigation.

Jatharagni may be studied through gastrointestinal physiology, while Bhutagni may be explored through biochemical transformation and nutrient processing. Dhatvagni provides a conceptual basis for investigating tissue-specific metabolic activity.

However, the scientific approach should avoid reductionism.

For example:

Jatharagni ≠ gastric acid

Jatharagni ≠ digestive enzymes

Bhutagni ≠ liver

Dhatvagni ≠ mitochondria

Instead, these modern mechanisms may represent measurable biological domains through which aspects of Ayurvedic Agni can be investigated.

This approach protects both the integrity of Ayurvedic concepts and the scientific validity of biomedical interpretation.

30. Scientific Significance

The study of Agni may contribute to several emerging areas:

- personalized nutrition,

- functional gastrointestinal research,
- metabolic health,
- chrononutrition,
- gut microbiome research,
- preventive medicine,
- lifestyle medicine and
- integrative physiology.

A validated Agni assessment system could potentially complement conventional metabolic assessment. However, such an application should only be proposed after adequate clinical validation.

31. Limitations

The present paper is a conceptual/narrative review and has several limitations.

1. It does not constitute a systematic review.
2. Direct biomedical equivalents of Agni have not been established.
3. Many correlations remain hypothetical.
4. Objective measurement of Agni requires further validation.
5. Classical Ayurvedic terminology may have different interpretations across Samhitas and commentaries.
6. Modern metabolic physiology is considerably more mechanistic than the classical Ayurvedic framework.
7. Clinical application of the proposed correlations requires prospective research.

32. CONCLUSION

Agni is one of the central concepts of Ayurvedic physiology and represents the principle of transformation, digestion, assimilation and metabolic utilization. The classical description of Jatharagni, Bhutagni and Dhatvagni provides a hierarchical model extending from gastrointestinal digestion to tissue-specific transformation.

Jatharagni can be functionally investigated through gastrointestinal physiology; Bhutagni through biochemical nutrient transformation; and Dhatvagni through tissue-specific metabolic processes.

The four states—Samagni, Mandagni, Tikshnagni and Vishamagni—provide an Ayurvedic framework for describing individual variation in digestive function.

Modern physiology provides measurable parameters that can potentially be used to investigate these concepts, including metabolic rate, glucose regulation, lipid metabolism, hormonal regulation, microbiome composition and metabolomic profiles.

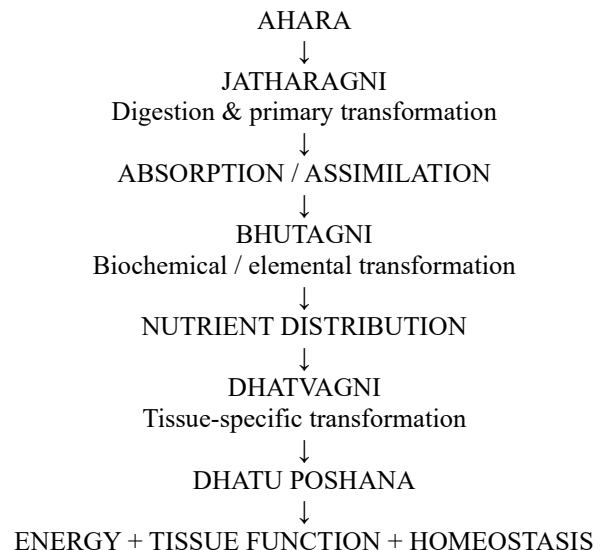
The most appropriate scientific approach is therefore not to declare direct equivalence between Agni and a particular modern biological mechanism, but to formulate testable functional correlations.

Agni may thus be considered a promising Ayurvedic framework for studying the integrated relationship between digestion, metabolism, tissue nourishment and physiological homeostasis.

Future research should focus on development and validation of an objective, multidimensional Agni Assessment Index,

followed by correlation with biochemical, physiological, metabolomic and microbiome parameters. Such research may provide a scientifically robust bridge between classical Ayurvedic physiology and contemporary metabolic science.

33. Proposed Conceptual Diagram



34. Key Take-Home Points

1. Agni is a functional physiological concept rather than a single anatomical structure.
2. Jatharagni is central to Ayurvedic digestion and metabolism.
3. Bhutagni represents another level of nutrient transformation.
4. Dhatvagni represents tissue-specific transformation.
5. Samagni represents balanced digestive function.
6. Mandagni, Tikshnagni and Vishamagni describe different functional disturbances.
7. Agni has potential relevance to modern metabolic research.
8. Ama should not automatically be equated with a modern toxin.
9. Agni and modern metabolism should be correlated functionally, not through forced one-to-one equivalence.
10. Objective Agni assessment is one of the most important future research priorities.

REFERENCES

1. Agnivesha. Charaka Samhita, revised by Charaka and Dridhabala, with Ayurveda Dipika commentary of Chakrapani Datta. Varanasi: Chaukhambha Sanskrit Sansthan.
2. Sushruta. Sushruta Samhita, with Nibandha Sangraha commentary of Dalhana. Varanasi: Chaukhambha Sanskrit Sansthan.
3. Vagbhata. Ashtanga Hridaya, with Sarvangasundara commentary. Varanasi: Chaukhambha Surbharati Prakashan.

4. Gaikwad KB, Bhojani MK. Bridging Ayurveda and biochemistry: a scoping review of Agni and metabolism. *Int J Community Med Public Health*. 2026;13(5):2539-49. doi:10.18203/2394-6040.ijcmph20261448.
5. Gaikwad K, Bhojani MK. Agni (digestion and metabolism) in relation to diurnal and seasonal rhythms: a conceptual review. *J Ayurveda Integr Med Sci*. 2026;10(12):149-56. doi:10.21760/jaims.10.12.23.
6. Eramangat S, S S. Agni and the gut-liver axis: an integrative perspective on digestive and hepatic health. *Kerala J Ayurveda*. 2026;5(1). doi:10.55718/kja.513.
7. Thakur SD. Physiological aspect of Agni and its role in metabolic activities: a review. *Int J Med Sci Pharma Res*. 2023;9(4). doi:10.22270/ijmspr.v9i4.79.
8. Patel MA, Patki PM, Kala K. Comprehensive review of Agni physiology: Ayurvedic perspectives and modern correlations. *J Ayurveda Naturopathy*. 2025;2(2):35-9. doi:10.33545/ayurveda.2025.v2.i2.A.28.
9. Sharma RP. A conceptual review of Agni and its role in digestion and metabolism. *Int J AYUSH*. 2025;14(12):16-24.
10. Rathee S. A comprehensive review on the role of Agni in health, disease and Ayurvedic therapeutics. *Int J AYUSH*. 2025;14(6). doi:10.22159/prl.ijayush.v14i06.1388.
11. Gunte K, Puradkar G. Agni and Vyayama: integrating Ayurvedic metabolic concepts with modern exercise science, epigenetic evidence, and translational health applications – a review article. *Ayurline Int J Res Indian Med*. 2026;10(2)).

Creative Commons (CC) License

This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution–Non-Commercial–No Derivatives 4.0 International (CC BY-NC-ND 4.0) license. This license permits sharing and redistribution of the article in any medium or format for non-commercial purposes only, provided that appropriate credit is given to the original author(s) and source. No modifications, adaptations, or derivative works are permitted under this license.

About the author

Prof. Dr. Samir Sapkota is a Professor and Head of the Department of Samhita and Siddhanta at IA Ayurvedic Medical College, University of Science and Technology Meghalaya (USTM), India. He is an experienced academician dedicated to teaching, research, and the promotion of Ayurvedic knowledge, particularly in Samhita and Siddhanta.