

**PHYSIOLOGICAL IMPORTANCE OF RASADHATU IN NUTRITION: AN
INTEGRATIVE REVIEW FROM AYURVEDIC AND CONTEMPORARY
PERSPECTIVES****Dr. Meena Kashinath Khot***

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How to cite this Article: Dr. Meena Kashinath Khot*. (2026). Physiological Importance of Rasadhatu In Nutrition: An Integrative Review From Ayurvedic and Contemporary Perspectives. World Journal of Pharmaceutical and Medical Research, 12(5), 324-328.

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Article Received on 19/03/2026

Article Revised on 09/04/2026

Article Published on 01/05/2026

ABSTRACT

Background: Ayurveda describes nutrition as a dynamic process extending from digestion and transformation of food to distribution and tissue nourishment. Rasadhatu occupies the first position among the seven Dhatus and is described in relation to Ahararasa, Dhatu Poshana, Rasavaha Srotas and the maintenance of bodily function. Contemporary physiology, meanwhile, recognizes plasma and extracellular fluid as transport and regulatory compartments that distribute nutrients, hormones, electrolytes and metabolic products. The relationship between these frameworks requires careful interpretation rather than direct anatomical equivalence. **Objective:** To critically review the physiological significance of Rasadhatu in Ayurvedic nutrition and examine areas of functional correspondence with contemporary physiology while distinguishing textual description from modern interpretation.

Materials and Methods: A narrative conceptual review was prepared from the uploaded manuscript and its cited classical framework, supplemented by contemporary peer-reviewed and authoritative biomedical sources identified through PubMed/NCBI and Ayurveda journals. The analysis focused on Ahararasa, Rasadhatu, Rasavaha Srotas, Dhatvagni, Dhatu Poshana Nyaya, fluid distribution and nutrient transport. Claims were framed as textual observations, functional interpretations or contemporary physiological facts, as appropriate. **Results:** The classical material positions Rasadhatu as a nutritive and distributive component arising in association with the processing of food and participating in nourishment of subsequent Dhatus. Dhatu Poshana Nyaya offers complementary explanatory models involving transformation, distribution and selective utilization. Contemporary physiology supports functional parallels with circulating and extracellular fluid compartments, particularly for nutrient transport, chemical signaling and fluid homeostasis. However, available evidence does not establish that Rasadhatu is anatomically identical to plasma, lymph or any single modern compartment. **Conclusion:** Rasadhatu can be scientifically discussed as a broader Ayurvedic physiological construct related to nourishment, distribution and maintenance. A cautious integrative model is more defensible than a one-to-one biomedical mapping. Future research should operationalize Ayurvedic constructs into measurable variables without prematurely reducing them to modern anatomical entities.

KEYWORDS: Rasadhatu; Ahararasa; Dhatu Poshana; Rasavaha Srotas; Dhatvagni; nutrition; Kriya Sharir; plasma; extracellular fluid; Ayurveda.

1. INTRODUCTION

Nutrition is not limited to the ingestion of food. In contemporary physiology, nutrients are absorbed, transported through body-fluid compartments, taken up by tissues and incorporated into metabolic pathways. Plasma contains water, proteins, electrolytes, nutrients, hormones and metabolic products and functions as an

important transport medium within the intravascular extracellular compartment.^[1,2] Interstitial fluid provides the immediate extracellular environment around cells and participates in exchange of nutrients, gases and metabolic products.^[3]

The present review therefore examines Rasadhātu as an Ayurvedic physiological construct and asks a narrower scientific question: which functions described for Rasa can reasonably be discussed alongside contemporary concepts of nutrient transport, fluid distribution and tissue nourishment, and where should the comparison stop?

2. AIM AND OBJECTIVES

Aim: To critically examine the physiological importance of Rasadhātu in nutrition using classical Ayurvedic concepts and contemporary physiological literature.

- To describe the Ayurvedic concept of Rasadhātu and its relationship with Ahara-rasa.
- To examine the proposed role of Rasadhātu in nourishment and distribution.
- To discuss Rasavaha Srotas, Dhatvagni and Dhatu Poshana Nyaya in the context of nutrition.
- To identify functional parallels with contemporary physiology without asserting anatomical identity.
- To identify limitations and priorities for future interdisciplinary research.

3. MATERIALS AND METHODS

Study design: Narrative/conceptual review.

Source framework: The uploaded manuscript was treated as the primary source framework for the Ayurvedic discussion. It includes references to Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya and classical commentarial literature.

External literature: Additional literature was identified through internet-based searches of PubMed/NCBI and established Ayurveda journal platforms. Priority was given to peer-reviewed articles, indexed biomedical literature and authoritative NCBI Bookshelf chapters. Contemporary sources were selected for tissue nourishment, Rasadhātu-related constructs, plasma physiology, extracellular fluid and capillary exchange. The review did not treat modern functional similarities as proof that classical and contemporary categories are identical.

Synthesis approach: Evidence was organized into four levels: (1) classical textual description; (2) interpretation within Ayurvedic physiology; (3) contemporary physiological fact; and (4) cautious functional comparison. This separation was used to minimize interpretive overreach.

4. RESULTS

4.1 Rasadhātu as a nutritive component

The reviewed Ayurvedic material describes the nutritive portion generated after digestion as Ahara-rasa and places Rasadhātu within the subsequent process of tissue nourishment. Charaka's description of Ahara-prasada and Kitta distinguishes a nutritive component from waste material. In the reviewed framework, this is not simply a description of food remaining in the gastrointestinal

tract; it is part of a broader physiological sequence extending toward tissue maintenance.

Sushruta's statement that the essence of food and drink nourishes the Dhatus further emphasizes the nutritional role attributed to Rasa. The important point for scientific communication is that the classical term should be retained in its own conceptual context rather than being replaced prematurely with a modern anatomical term.

4.2 Rasadhātu and sequential Dhatu nourishment

The classical sequence from Rasa to Rakta, Mamsa, Meda, Asthi, Majja and Shukra is central to Ayurvedic explanations of tissue nutrition.^[4] Contemporary scholarship on Dhatu Poshana Nyaya notes that Ayurvedic theories can be interpreted as models of tissue nourishment involving circulating nutrients, tissue-specific utilization and interdependence among tissues.^[5,6]

The uploaded manuscript similarly emphasizes that the Dhatu Poshana Nyayas should not be reduced to a rigid one-way conversion. This distinction is important because contemporary metabolism does not support a simple sequential transformation of one mature tissue into another. Nutrients are distributed and metabolized through multiple interconnected pathways.

4.3 Dhatu Poshana Nyaya as complementary explanatory models

Ksheera-Dadhi Nyaya emphasizes transformation; Kedari-Kulya Nyaya emphasizes distribution; and Khale-Kapota Nyaya emphasizes selective utilization. The uploaded source also discusses Ekakala Dhatu Poshana as a model in which nourishment can reach different Dhatus while utilization varies according to tissue requirements.

These analogies may be useful as conceptual models, but they should not be described as experimentally demonstrated molecular mechanisms. A recent review specifically examining Dhatu Poshana Nyaya and tissue-nutrition theory presents these Nyayas as explanatory principles and discusses their possible relationship to contemporary concepts, while also underscoring the need for scientific interpretation.^[5]

4.4 Rasavaha Srotas and distribution

The reviewed Ayurvedic framework connects Rasadhātu with Rasavaha Srotas and describes functions involving transport, distribution, tissue nourishment, fluid balance and circulation. Contemporary physiology likewise recognizes the vascular and interstitial compartments as an integrated system for exchange of water, nutrients, gases, signaling molecules and metabolic products.^[1,3,7]

This provides a reasonable functional point of comparison: both frameworks describe movement and distribution of substances necessary for physiological maintenance. The comparison remains functional

because the anatomical definitions, measurement methods and theoretical assumptions of the two systems are different.

4.5 Rasadhatu and fluid homeostasis

The uploaded manuscript describes Rasa as having a predominantly fluid character and discusses possible parallels with plasma and extracellular/interstitial fluid. Contemporary physiology defines plasma as the intravascular component of extracellular fluid and identifies it as a carrier of nutrients, hormones, electrolytes, gases and metabolic products.^[1,2] Interstitial fluid surrounds tissue cells and serves as an exchange medium between the vascular compartment and cells.^[3,7]

Accordingly, plasma and extracellular fluid offer useful modern reference points for discussing selected functions of Rasa. They should not, however, be presented as direct anatomical equivalents. The available literature does not provide sufficient evidence to establish a one-to-one correspondence between Rasadhatu and a single modern body compartment.

4.6 Rasadhatu and Ojas/Bala

The source framework places adequate Dhatu nourishment upstream of Ojas and Bala. This can be retained as an Ayurvedic physiological relationship.

4.9 Ayurvedic–contemporary functional comparison.

Ayurvedic Construct	Functional interpretation in this review	Important limitation
Ahararasa	Nutritive product associated with digestion	Not identical to a single modern nutrient pool
Rasadhatu	Nutritive/distributive physiological construct	No established one-to-one anatomical equivalent
Rasavaha Srotas	Movement/distribution pathways	Not demonstrated to equal a single modern organ system
Dhatvagni	Conceptual basis for tissue-specific transformation/metabolism	Not directly equivalent to one enzyme or metabolic pathway
Dhatu Poshana	Tissue nourishment and utilization	Ayurvedic model differs from modern molecular metabolism
Ojas/Bala	Ayurvedic concepts of vitality/strength	No validated single biomedical equivalent

5. DISCUSSION

The principal finding of this review is that Rasadhatu is best understood as part of an integrated Ayurvedic model of nutrition rather than as an isolated anatomical tissue. The reviewed framework links food, digestion, Ahararasa, Rasa, distribution, Dhatu-specific processing and tissue nourishment. This systems-level organization has a useful conceptual resemblance to the contemporary understanding that nutrient absorption is followed by transport, exchange and tissue utilization.

A second finding concerns the value and limits of cross-disciplinary comparison. Contemporary plasma physiology provides a strong factual basis for discussing transport and homeostasis: plasma carries nutrients, hormones, electrolytes and metabolic products and participates in fluid and osmotic regulation.^[1,2] Capillary and interstitial exchange further supports tissue delivery

However, Ojas should not be equated with a specific biomarker, immune molecule or biochemical substance unless empirical evidence establishes such an association. The contemporary literature used in this review does not establish such an equivalence.

4.7 Rasadhatu and Stanya

The reviewed material describes a classical relationship between Rasa and Stanya and therefore places Rasadhatu within the broader physiology of lactation. This is a textual physiological association. It should not be interpreted as evidence that modern lactogenesis can be explained solely by Rasadhatu, because contemporary lactation involves endocrine regulation, mammary tissue physiology, nutrient availability and other processes.

4.8 Rasadhatu Kshaya and nutritional disturbance

The uploaded review lists manifestations associated with disturbance of Rasa, including reduced interest in food, Aruchi, Gaurava, Tandra, Angamarda, Jwara and Daurbalya. These features are clinically nonspecific and should not be presented as diagnostic equivalents of dehydration, malnutrition or any single modern disease. Contemporary fluid and nutritional disturbances require assessment using validated clinical and laboratory parameters.

and removal of metabolic products.^[3,7] These functions overlap with some descriptions attributed to Rasa. The overlap, however, is functional rather than proof of identity.

A third issue is the interpretation of Dhatu Poshana Nyaya. The Ksheera-Dadhi, Kedari-Kulya and Khale-Kapota analogies can be presented as different explanatory lenses—transformation, distribution and selective utilization—rather than as mutually exclusive mechanisms.^[5,6] This approach preserves the intellectual structure of Ayurveda while avoiding claims that the Nyayas have already been experimentally mapped to specific molecular pathways.

The literature also demonstrates that Rasadhatu-related constructs are being investigated empirically. A mixed-method study attempted to validate a construct of

Rasadhatudushti in adults at cardiovascular risk, illustrating a pathway by which classical constructs may be operationalized for research.^[8] Such studies are valuable, but construct validation in a particular population should not be generalized to establish an anatomical definition of Rasadhatu.

Recent Ayurveda reviews continue to explore Rasa in relation to homeostasis and women's physiology.^[9,10] These publications support continued conceptual research but also illustrate the importance of distinguishing classical statements from interpretive modern correlations. The present review therefore deliberately uses terms such as "possible functional parallel," "conceptual correspondence" and "interpretive comparison," rather than asserting equivalence.

6. Scientific Significance

From a contemporary research perspective, Rasadhatu may serve as a hypothesis-generating construct for studying relationships among nutrition, fluid status, circulation, tissue nourishment and physiological resilience. The concept becomes scientifically testable only when its proposed attributes are translated into reproducible variables. Potential domains include nutritional status, hydration markers, plasma proteins, hematological indices, metabolic parameters, inflammatory markers, body composition and validated clinical measures. Such variables should be selected according to a prespecified conceptual model rather than retrospectively chosen to confirm an expected relationship.

This approach may help move discussion from broad analogies toward falsifiable interdisciplinary research. It also prevents the common error of assigning a single biomedical label to a multidimensional Ayurvedic construct.

7. Limitations

- This is a narrative/conceptual review and not a systematic review or meta-analysis.
- The Ayurvedic source framework is interpretive and derives from classical terminology whose meanings depend on textual context and commentarial traditions.
- Modern physiological comparisons are functional analogies and do not establish anatomical identity.
- The available literature does not establish a validated biomarker that uniquely measures Rasadhatu.
- Some contemporary Ayurveda publications use plasma, lymph or other modern terms as explanatory correlates; such mappings remain interpretations rather than universally established scientific equivalences.
- Future studies should use explicit operational definitions, appropriate controls, validated outcome measures and transparent statistical methods.

8. Future Research Directions

- Develop an operational Rasadhatu construct with clearly defined measurable domains.
- Study associations between Ayurvedic assessment of Rasa status and independently measured nutritional and fluid-status parameters.
- Use prospective and longitudinal designs to examine whether changes in proposed Rasadhatu indicators correspond with changes in objective physiological measures.
- Separate classical textual validation, construct validation and clinical efficacy research as distinct research questions.
- Avoid circular validation in which modern variables are selected solely because they appear to resemble the Ayurvedic construct.
- Use interdisciplinary teams involving Ayurveda scholars, physiologists, nutrition scientists, clinicians and biostatisticians.

9. CONCLUSION

Rasadhatu occupies a central position in the Ayurvedic physiology of nutrition. The reviewed classical framework connects it with the nutritive outcome of food processing, distribution and nourishment of subsequent Dhatus. Contemporary physiology provides meaningful functional points of comparison through plasma, extracellular fluid, capillary exchange and tissue nutrient delivery.^[1,3,7]

The scientifically cautious interpretation is that Rasadhatu is a broader Ayurvedic physiological construct that includes dimensions of nourishment, distribution and maintenance. It should not presently be reduced to plasma, lymph or any other single modern anatomical compartment. Future empirical research can strengthen the dialogue by defining measurable attributes and testing them prospectively. Such an approach preserves the specificity of Ayurvedic physiology while maintaining scientific rigor and avoiding unsupported equivalence claims.

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