

Integrative Insights into Agni Dysregulation and Thyroid Hypofunction: Narrative Review

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ABSTRACT

Introduction: In Ayurveda, Agni(digestive/metabolic factors) is regarded as the central regulatory force in maintaining physiological homeostasis. It is responsible for the digestion, absorption, assimilation and transformation of food into Dhatus(body tissues). Agnimandya (Impairment of Agni) is considered the root cause of most diseases. Ashtanaga Hridaya has quoted “Rogau Sarve Api Mandagnau” Which means disturbance in Agni due to improper diet, lifestyle and stress contributes to the development of dysbiosis, leading to various organ system diseases. Although, thyroid gland and its disorders are not explicitly referenced in Ayurvedic texts, the clinical features of hypothyroidism such as fatigue, weight gain, cold intolerance, and mental sluggishness closely correlate with the derangement of Agni, Kapha Dosha and Rasadhatu. **Materials and Methods:** A narrative review was conducted using classical Ayurvedic texts and contemporary scientific literature. Electronic databases including PubMed and the AYUSH Research Portal were searched using predefined keywords related to Ayurveda, Hypothyroidism, Agni AND homeostasis and Ayurveda AND thyroid disorders. English-language review and clinical studies were included. Reference lists of selected articles were also screened. **Result:** The review highlights that digestion is governed by Jatharagni and Panchabhautika Agni, while Dhatvagni facilitates molecular transformation of nutrients into Dhatus through Prasada (nutrient) and Kitta (waste) formation. Balanced Jatharagni and Dhatvagni are essential for proper tissue growth, metabolism, and nutrients transport at the cellular level. Findings suggest that hypothyroidism reflects a state of Agnimandya, particularly involving Rasadhatvagni, with predominant Kapha aggravation and sluggish metabolic activity. This imbalance disrupts Srotasa (bodily channels), leading to systemic dysfunction. **Conclusion:** Understanding hypothyroidism through Agni imbalance offers an integrative framework, linking Jatharagni, Bhutagni, and Dhatvagni to digestive, hepatic, and cellular metabolism. This perspective emphasizes Agni’s central role in maintaining homeostasis via regulation of digestion, metabolism, and waste elimination.

Keywords: Agni, Agnimandya, Hypothyroidism, Homeostasis, Rasadhatvagni.

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1. INTRODUCTION

The thyroid gland, a key endocrine organ, regulates cellular metabolism through hormones like Tri-iodothyronine, Thyroxine, and calcitonin. Low production of these hormones leads to hypothyroidism, causing various health issues. Thyroid disorders are the most prevalent endocrine gland conditions, affecting approximately 42 million individuals in India. In urban areas, hypothyroidism affects around 10.95% of the population, with higher rates observed among women and older adults. Early-stage hypothyroidism often presents with nonspecific symptoms that are frequently overlooked or misdiagnosed as infertility, high cholesterol, depression, and other conditions. In its initial phase, the symptoms are broad and subtle, but as the disease progresses, it can impact multiple organ systems, worsening the patient's overall health. Therefore, hypothyroidism poses a significant public health concern. The clinical presentation of hypothyroidism shares similarities with several Ayurvedic conditions, such as *Vataja Shotha*, which includes non-pitting edema similar to

myxedema, and *Rasa Pradoshaja Vikara* (Disease caused due to vitiation of *Rasa Dhatu*), marked by symptoms like fatigue, heaviness, and poor appetite. This condition primarily reflects an imbalance involving vitiated *Kapha* and *Vata Doshas*, along with disturbance in *Rasa Dhatu*. This is largely attributed to *Agnimandya* (weakened digestive/metabolic factor), as rightly stated by Acharya Vagbhata: “*Roga Sarve Api Mandagnau.*”¹ Ayurveda doesn’t directly mention thyroid hormones, it remains comprehensive with its unique principles of *Dosha* (body energies), *Dhatu* (tissues), and *Mala* (waste), which govern metabolism. A balanced state of *Dosha*, *Dhatu*, *Mala*, *Agni* (digestive fire), mind, soul, and senses ensures human health.² As stated earlier, the root cause of all diseases is weakened *Agni*, known as *Agnimandya*, which disrupts metabolism via *Pitta Dosha*. *Agni* is classified into three types: *Jatharagni* (digestive fire), *Dhatvagni* (tissue metabolism), and *Panchamahabhutagni* (elemental transformation). Although Ayurveda doesn’t explicitly reference the thyroid, Acharya Charaka emphasizes that disease names are secondary to symptom-based diagnosis.³ Hypothyroidism symptoms can thus be understood by analyzing imbalances in *Agni*, *Kapha Dosha*, and *Rasadi Dhatu* (tissue elements), which affect various *Strotas* (bodily systems). This review explores hypothyroidism by linking its symptoms to vitiated *Rasadhatvagni* (The metabolic fire of the *Rasa* tissue) and *Kapha Dosha*, using insights from Ayurvedic and modern literature.

2. AIM

To explore the role of *Agni* in homeostatic maintenance with special reference to hypothyroidism.

3. MATERIALS

An extensive literature search was conducted using available PG dissertations & PhD thesis in *Ayurveda*, published books of modern medicine and online bibliographic databases, including PubMed, Google Scholar, IAMJ, and clinical trial repositories. Websites such as Google Scholar, PubMed, AYUSHDHARA, and J-Gate were also utilized to collect relevant materials for this review article.

4. METHODS

The search strategy employed keywords such as “**Agni AND homeostasis**,” “**Agni AND hypothyroidism**,” “**Ayurveda AND thyroid disorders**,” and “**Ayurvedic management of hypothyroidism**.” Manual cross-referencing was undertaken to identify additional relevant studies that were not captured in the initial search. Both experimental and narrative studies were reviewed for potential inclusion. Relevant articles were then screened based on predefined eligibility criteria, and the selected literature was synthesized thematically to explore the relationship between *Agni*, metabolic regulation, and thyroid dysfunction.

Inclusion Criteria

The review included articles published in peer-reviewed journals since 2010, along with studies describing the physiological and pathological role of *Agni*, particularly in relation to thyroid dysfunction. Clinical studies evaluating Ayurvedic interventions for hypothyroidism were considered, as were theoretical and conceptual papers linking *Agni* with metabolic and hormonal regulation. Manual cross-referencing was carried out when necessary to identify supplemental sources, and both experimental and narrative studies were included for thematic synthesis.

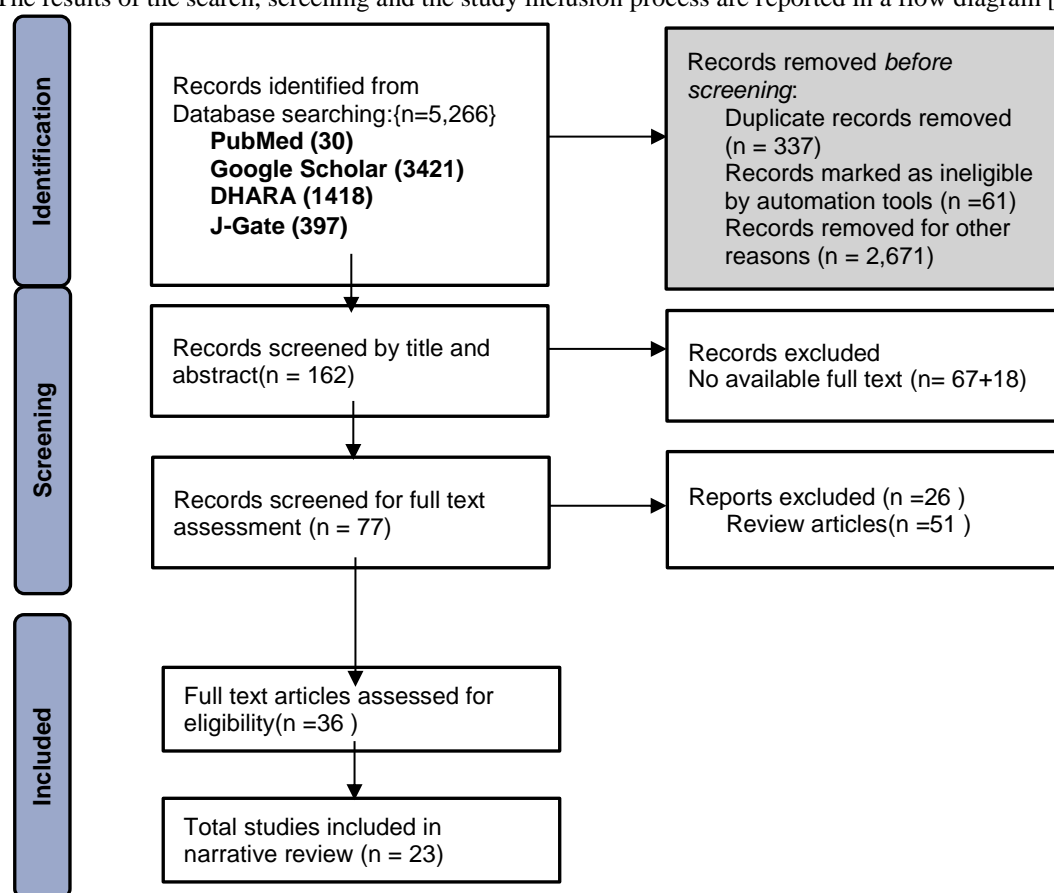
Exclusion Criteria

Studies were excluded if they were published before 2010, lacked peer review, or did not directly address *Agni*, metabolism, or thyroid-related concepts. Articles unrelated to Ayurveda or focusing solely on non-thyroid endocrine disorders were omitted. Case reports without adequate methodological detail, studies with unclear outcomes, and papers not available in English were also excluded. Additionally, duplicates, conference abstracts, and anecdotal commentaries without scientific backing were not considered for the review.

5. RESULTS

Out of 5,266 records (PubMed- 30, Google Scholar- 3421, DHARA- 1418, J-Gate- 397) identified from four databases, 23 were included, encompassing various study designs, interventions and outcomes. A summary of findings is presented in the tables along with a narrative summary of the studies.

The results of the search, screening and the study inclusion process are reported in a flow diagram [Figure 1].



These figures reflect the level of existing literature of interest in the interrelation between Ayurvedic concepts and thyroid dysfunction, highlighting potential areas for deeper exploration. Among the 23 studies, there were nine randomized controlled trials (RCTs), seven case reports, three single-arm studies, two observational studies and one study each in the categories of nonrandomized comparative trial, and a case series. The year of publication ranged from 2010 to 2025, and more studies were published after 2018. The age of the population is mostly in the range of 18–60, and the sample size ranges from 30 to 100. Parameters used for assessing the results of the studies were mainly subjective parameters, along with objective parameters like Thyroid profile test (Sr. TSH, Total T₄, and T₃). The main interventions used in RCTs are *Vardhamana Pippali Rasayana*⁴ and *Kanchanar Gutika*⁵ Along with *Ksheerbala Tailam* for external application were also used in clinical trials. In case reports, a mainly comprehensive approach was utilized involving compound formulations, *Panchakarma* therapies⁶, dietary intervention, and lifestyle modifications. The aspect of adverse effects was mentioned by a few studies, and no adverse events were reported. Assessment of studies was done before and after the intervention, and a smaller number of studies provided information of follow-up.

6. DISCUSSION

Homeostatic equilibrium forms the foundation of human biology, co-ordinating intricate interactions among hormones, metabolic pathways, and cellular energy to sustain life. The thyroid gland, by releasing thyroxine (T₄) and tri-iodothyronine (T₃), significantly influences metabolic balance, impacting nearly all bodily tissues to regulate energy and function.⁷ In Ayurveda, the Sanskrit term *Agni*, or "fire," represents the essential force that governs digestion and metabolic processes. According to *Darshana* philosophy, *Agni* being one of the *Pancha Mahabhutas* (five fundamental elements), transforms ingested food into vital energy, supporting all critical bodily functions.⁸ Modern science's concept of metabolism—encompassing chemical and energy transformations—parallels the dynamic, life-sustaining role of *Agni*, bridging ancient wisdom with contemporary science to underscore the fiery essence that fuels human vitality. *Agni*, which governs metabolism (*Dhatupaka*), plays a central role in maintaining health. A sedentary lifestyle can disturb the balance of *Kapha Dosha*, which in turn suppresses *Jatharagni* (the digestive capacity in the gut), leading to the formation of *Ama* (toxins).⁹ Since *Dhatwagni* (tissue metabolism) relies on *Jatharagni*, its dysfunction results in the improper formation of the body's seven tissues (*Sapta Dhātu*), starting from *Rasa* (lymphatic tissue) to *Shukra* (reproductive tissue). This imbalance particularly affects *Meda Dhātu* (fat tissue), leading to abnormal tissue growth and excess *Kapha*-related waste.

When *Rasa Dhatwagni* is weak, it causes an accumulation of poorly processed *Rasa* and an overproduction of *Kapha* (i.e. *Mala Rupa Kaphavidhi*), manifesting as symptoms that closely resemble hypothyroidism. These include *Tandra* (fatigue), *Atinidra* (excessive sleep), *Gaurava* (heaviness), *Aalasya* (lethargy), *Balasaka* (weakness), *Agnimandya* (poor appetite), *Hridaya upalepa* (chest heaviness), *Galganda* (goitre), *Atisthoulya* (obesity), and *Shweta Abhasa* (pallor). These signs are understood in Ayurveda as *Kapha* disorders¹⁰ and align with modern presentations of hypothyroidism. *Medodhatwagni* is the specific metabolic energy responsible for processing and nourishing *Medo Dhatu* (the fat tissue). When this metabolic function becomes sluggish, it leads to the buildup of improperly processed fat (*Sama Medo Dhatu*), which forms the basis for imbalances seen in conditions like hypothyroidism.¹¹ This dysfunction can trigger a range of symptoms described in Ayurveda as *Medo Pradoshaja Vikara* and as early signs (*Purvarupa*) of *Prameha*, or as features of the *Ashta Nindita Purusha* (eight undesirable body types)—specifically, *Atisthula* (the excessively obese body type).

These symptoms—such as *Aalasya* (fatigue), *Mukha-Talu-Kantha Shosha* (dryness of mouth and throat), *Shithilanga* (lethargy), *Ghanaangata* (weight gain), and excessive fat in body creases - closely resemble the clinical presentation of hypothyroidism in modern medicine. Thus, from an Ayurvedic perspective, hypothyroidism can be understood as a result of *Dhatwagni Mandya*—the impaired function of tissue-level metabolism. Disruption of *Agni* closely resembles pathophysiological states seen in hypothyroidism, characterized by a lowered basal metabolic rate, impaired digestion, and multi-systemic malfunction.¹² Understanding the interplay between Ayurvedic and modern biomedical frameworks offers a more holistic view of metabolic disorders like hypothyroidism. While thyroid hormones primarily regulate cellular energy production, thermogenesis, and tissue growth through endocrine pathways, *Agni* represents a broader functional entity - governing not just digestion but also the subtle transformation of nutrients into vitality. In hypothyroidism, sluggish thyroid function causes widespread physiological slowdown, which in Ayurveda corresponds to a weakened state of *Agni*, particularly *Jatharagni* and *Dhatwagni*. This impaired metabolic fire contributes to systemic dysfunction, including psychological imbalances and hormonal irregularities, which are interpreted in Ayurveda as disturbances in *Manovaha* and *Shukravaha Strotas*. The reduction in metabolic efficiency also creates a fertile ground for the accumulation of *Ama*, or toxic metabolic residue. This internal toxicity further disrupts tissue nourishment and cellular communication, often exacerbating conditions like fatigue, mood disturbances, menstrual irregularities, and poor skin health—symptoms that are common in both hypothyroidism and *Agnimandya*. Importantly, this highlights the interconnected nature of digestive strength and endocrine balance. From a clinical perspective, evaluating metabolic health solely through laboratory parameters may miss subtle but significant disturbances. An Ayurvedic assessment of *Agni*—through appetite levels, digestion patterns, and subjective energy—can provide valuable early insights. These qualitative markers often precede measurable biochemical changes, making Ayurvedic diagnostics a potentially useful adjunct in preventive and personalised care. Therapeutically, Ayurveda aims not only to correct the hormonal imbalance but also to revitalise the individual's core vitality. Treatments focus on rekindling *Agni* through herbal *Rasayanas* (*Vardhamana Pippali Rasayana*), *Kanchanar Gutika*, *Ksheerbala Tailam* for local application and metabolic correctives that restore the natural rhythm of digestion and tissue metabolism. In particular, the use of *Agni*-enhancing formulations, along with lifestyle modifications such as regular routines, mindful eating, and stress reduction, reinforces the body's innate capacity to restore balance. This integrated model encourages a shift from disease-centred to health-centred care, acknowledging the individual's unique constitution and lived experience as central to healing.

7. CONCLUSION

This review highlights the strong link between *Agni* in Ayurveda and thyroid function in modern medicine. Hypothyroidism can be considered under the pervue of *Dhatwagni Mandyajanya Vyadhi*, where the metabolic activity at the tissue (*Dhatu*) level becomes impaired. Contributing factors include a sedentary lifestyle and consumption of calorie-dense foods coupled with minimal physical activity, leading to metabolic imbalance. In Ayurveda, *Agni* is the core of metabolism—regulating digestion, energy, and immunity. When *Agni* weakens (*Agnimandya*), the body shows signs similar to hypothyroidism, such as fatigue, slow metabolism, and poor digestion.¹³ Ayurvedic treatments that strengthen *Agni* have shown positive results, especially where modern thyroid medicines may fall short or cause side effects. An integrated approach- combining Ayurvedic support with hormone therapy- may lead to better health outcomes. To make this possible, scientific research, standard tools to assess *Agni*, and collaboration between Ayurveda and modern medicine are essential.

8. RECOMMENDATIONS

Further research can be conducted to assess the effectiveness of Ayurvedic medications in managing hypothyroidism, using a larger sample size and incorporating the principle of *Nidana Parivarjana* (elimination of causative factors). Evaluation parameters may include free T3 and T4 hormone levels. Additionally, the influence on autoimmune thyroid conditions can be studied by measuring antithyroid antibodies such as Thyroid Peroxidase Antibody (TPOAb), Thyroglobulin Antibody (TgAb), Thyroid-Stimulating Immunoglobulin (TSI), and TSH Receptor Blocking Antibodies (TBII).

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