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ASSESSMENT OF THE EFFECT OF VYAYAMA (BRISK WALKING) ON AGNI WITH SPECIAL REFERENCE TO HYPOTHYROIDISM: A COMPREHENSIVE REVIEW

Dr. Akshay Bhusare*[1], Dr. Gugulothu Ramesh[2]

[1]M.D. Scholar, PG Dept. of Kriya Sharira, A & U Tibbia College and Hospital, Karol Bagh, New Delhi-110005.

[2]Assistant Professor, PG Dept. of Kriya Sharira, A & U Tibbia College and Hospital, Karol Bagh, New Delhi-110005.

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***Corresponding Author**

Dr. Akshay Bhusare

M.D. Scholar, PG Dept. of Kriya Sharira, A & U Tibbia College and Hospital, Karol Bagh, New Delhi-110005.

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ABSTRACT

Hypothyroidism, an endocrine disorder characterized by systemic metabolic slowdown, it can correlate with Ayurvedic principle of *Mandagni* (diminished metabolic fire) and *Dhatvagni Mandya* (impaired tissue metabolism). In the context of hypothyroidism, this review attempts to methodically evaluate the therapeutic value of *Vyayama*, particularly brisk walking, as a non-pharmacological intervention for igniting the biological fire (Agni Deepana). The article establishes the pathogenesis of hypothyroidism as a state of Kapha-Vata vitiation and Ama accumulation, directly addressed by the Ushna (heating) and Tikshna (sharp) qualities of *Vyayama*. It does this by synthesising classical Ayurvedic texts with contemporary endocrinology and exercise physiology. The best type of *Vyayama* to encourage *Medas-kshaya* (fat reduction) and restore the effectiveness of *Jatharagni* and *Dhatvagni* is brisk walking, a moderate-intensity exercise done within the Ardha-Shakti limit. The results highlight the need to combine this age-old knowledge with contemporary clinical care in order to offer patients with hypothyroidism a comprehensive and successful treatment plan.

KEYWORDS: Agni, brisk walking, Hypothyroidism, *vyayam*.

INTRODUCTION

Hypothyroidism is a worldwide health issue, affecting millions of people and presenting symptoms such as fatigue, weight gain, feeling cold all the time, and having problems with how well you think.[1] Hypothyroidism results in not enough thyroid hormone production, which controls metabolic functions. The conventional approach for treating hypothyroidism is by taking a manmade form of one of the naturally produced thyroid hormones (levothyroxine) every day for the rest of your life. However, many people are now recognizing the importance of using a more holistic approach that addresses the underlying cause of the condition in order to achieve optimal health outcomes.[2] Ayurvedic medicine is an ancient Indian system of medical philosophy that offers an entirely different perspective on how to diagnose and treat metabolic disorders, such as hypothyroidism, than conventional medicine. In Ayurveda, all physiological and pathological processes are governed by the biological fire called Agni. Agni is responsible for digestion, assimilation, and transformation of food into energy. The clinical picture of hypothyroidism—a body-wide slowing down—perfectly correlates to the Ayurvedic term *Agnimandya* (diminished *Agni*).[3] This review article discusses how to bring together the principles of modern-day endocrinology and Ayurveda by exploring the benefits of *Vyayam* (physical exercise) for the treatment of hypothyroidism. A common form of exercise, brisk walking, is a type of aerobic exercise that everyone can do, and is also low-impact, which makes it a good fit with the definition of Brisk Walking in Ayurveda. By systematically reviewing the classical and contemporary literature, this article seeks to establish a strong rationale for integrating brisk walking into the management protocol for hypothyroidism, focusing on its mechanism of action through the lens of Agni stimulation.

MATERIALS AND METHODS

This review was conducted through a systematic search of classical Ayurvedic texts and contemporary scientific literature.

Search Strategy and Sources

The search was performed across multiple databases, including PubMed, Google Scholar, ScienceDirect, and the AYUSH Research Portal, alongside a review of primary Ayurvedic texts such as the Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya.

Conceptual Analysis: Vyayam, Agni, and Hypothyroidism

Vyayam karma

लाघवं कर्मसामर्थ्यं दीप्तोऽग्नि: मेदस: क्षय:विभक्तघनगात्रत्वं व्यायामात् उपजायते(AH, Su , 2/10)[4]
शरीरलाघवम कर्मसामर्थ्यं स्थैर्यं दुखसहिष्णुता |दोषक्षयोऽग्निवृद्धिश्च व्यायामादुपजायते ||(Su chi 24)

The benefits of Vyayam are meticulously detailed in the classical texts, including.

- *Diptagnitvam*: Stimulation of the digestive and metabolic fire (Agni).
- *Laghava*: Feeling of lightness in the body.
- *Karmasamarthya*: Enhanced capacity to perform work.
- *Srotoshodhana*: Cleansing of the channels of circulation.
- *Medakshaya:* Reduction of excess fat tissue (Medas).[5]

Brisk walking is a form of Vyayam that is Ardha-shakti (performed up to half of one's strength), making it ideal for individuals with chronic conditions like hypothyroidism, where excessive exertion is contraindicated. Its aerobic nature directly contributes to the desired effects of *Diptagnitvam* and *Medakshaya*.[6]

The Central Role of *Agni*

Agni is an essential aspect of Ayurvedic physiology. Agni represents a central principle for Ayurveda and governs all transformations occurring in the body. A person's Agni can be classified into three major categories.

1. Jatharagni (Digestive Fire): Alied (mentally) and located primarily in the gastrointestinal (GI) tract where it transforms food into nutrients (Ahara Rasa) that can be absorbed by body.

2. *Bhutagni* (Elemental Fire): The five types of Agni (element) that were responsible for converting Ahara Rasa into the five basic elements (Pancha Mahabhutas) that make up the human body.

3. *Dhatvagni* (Tissue Fire): The seven types of Agni located in the seven different Dhatus (tissue) within the body and serve the purpose of metabolizing and providing nutrition for the different Dhatus in the human body.

A compromised state of Agni (Agnimandya) is the primary cause of almost every known disease/illness (*Sarva Roga Mand Agni***)** in humanity**.** An individual with a weak Agni will develop Ama (material that is improperly digested) which plugs up the channels of the body (*Srotas)* causing diseases.[3]

Hypothyroidism and its Ayurvedic Correlation

Hypothyroidism, characterized by a low metabolic rate, finds its closest correlation in Ayurveda with the concept of *Dhatvagnimandya.*[7]

The symptoms of hypothyroidism—weight gain, lethargy, edema, and coldness—are in classical ayurvedic context can be correlates with kapha dosha *vriddhi* and *agnimandya.*

1. Jatharagni Mandya: Weakened digestive fire leads to the formation of Ama.

2. Srotavarodha (Channel Obstruction): Ama and vitiated Kapha obstruct the *Srotas,* particularly the *Medovaha Srotas* (channels of fat tissue) and *Rasavaha Srotas* (channels of plasma/lymph).[8]

3. *Dhatvagni Mandya*: The obstruction prevents the proper nourishment of the Dhatus, leading to a systemic slowdown of tissue metabolism. The thyroid gland's function, which is a key metabolic regulator, is thus impaired, mirroring the dysfunction of the Dhatvagnis.

While the condition is sometimes correlated with *Galaganda* (goiter), the metabolic aspect is most accurately captured by the concept of Dhatvagnimandya.[9]

Detailed Physiological Analysis of Agni and *Dhatvagni*

Agni, which encompasses all of the body's biological transformations, has many dimensions. One dimension that can be viewed specifically in the condition of Hypothyroidism is the impaired function of the *Dhatvagni.* Each of the seven Dhatus has a *Dhatvagni.* The following list gives the seven Dhatus and their corresponding *Dhatvagnis.*

1. *Rasa* (plasma) *Dhatvagni*

2. Rakta (blood*) Dhatvagni*

*3. Mamsa (*muscle*) Dhatvagni*

4. Medas (fat*) Dhatvagni*

*5. Asthi (*bone*) Dhatvagni*

*6. Majja (*marrow*) Dhatvagni*

*7. Shukra (*reproductive tissue*) Dhatvagni*.[10]

The Relationship Between *Jatharagni* and *Dhatvagni*

Jatharagni is the most powerful Agni, which gives strength and support to all other Agnis in the body. When Jatharagni is not working properly (*Agnimandya*), it creates Ama (toxic byproducts), which are created by improper digestion. The processed Ama is absorbed into the bloodstream and transport into the different Dhatus where it continues to hinder the normal function of the *Dhatvagni* When a person suffers from Hypothyroidism, usually the

slowdown in the *Jatharagni* starts first. However, the symptoms of having a cold or gaining weight are directly connected with having *Medodhatvagni Mandya and Rasadhatvagni Mandya.*[11]

Agni as a Bio-energetic Principle

Agni, as defined in ayurveda, has been compared to the cellular respiration of mitochondria. Mitochondria are the cells' energy sources and produce the adenosine triphosphate (ATP) from aerobic oxidation. The way that Agni transforms food into energy is similar to how mitochondria transform food through aerobic oxidation and convert it into ATP. Thyroid hormones control the mitochondria and influence cellular respiration to provide energy and heat. When thyroid hormone levels are low, such as with hypothyroidism, it is common for people to develop a condition called cellular *Agnimandya*. This condition inhibits the body's production of heat and energy.[12]

Biomechanics and Physiology of Brisk Walking (*Vyayam)*

Brisk walking stimulates a large number of muscles and helps to create a flow of oxygen from the heart to the lungs. Ayurveda calls this type of walking *Chankramana*, which aids in digestion and mental clarity.[13]

The Aerobic Stimulus and Agni

Brisk walking stimulates greater demands on oxygen and nutrients in the muscle. Increased heart rate and better circulation promote Agni. Therefore, when brisk walking occurs, there will be a greater demand for food factors to fuel the body's Metabolism. Additionally, with the increase in blood flow due to brisk walking, it is often helpful in removing Srotavarodha, the obstruction of the channels from the heart to the rest of the body, and assist in the elimination of Ama and to transport stagnant Kapha and Medas (fat).[14]

Brisk Walking vs. Strenuous Exercise

Ayurveda emphasizes the importance of Matra (proper measure) in *Vyayam*. For a hypothyroid patient, whose Agni is already weak, strenuous exercise can be counterproductive, leading to Vata *Prakopa* (aggravation of Vata) and further depletion of Ojas (vitality). Brisk walking, performed at Ardha-shakti (half-strength), provides a sufficient stimulus to rekindle Agni without causing exhaustion. This "moderate" approach is scientifically supported, as excessive exercise in hypothyroid individuals can sometimes lead to a further drop in T3 levels due to increased metabolic stress.[15]

DISCUSSION

Vyayam as an Agni Stimulant in Hypothyroidism

The therapeutic value of brisk walking in hypothyroidism lies in its dual action: it is a scientifically proven method to enhance metabolism and a classically defined method to stimulate Agni.

The Mechanism of Agni Stimulation by Brisk Walking

The primary goal in managing Dhatvagnimandya is to rekindle the metabolic fire without aggravating Vata Dosha. Brisk walking, when performed at Ardha-shakti, achieves this balance.

Table no. 1: Ayurvedic concept with modern equivalents.

Ayurvedic Concept	Modern Physiological Equivalent	Effect on Hypothyroidism Pathology
Diptagnitvam	Increased Basal Metabolic Rate (BMR)	Counteracts the systemic metabolic slowdown.
Medakshaya	Lipolysis and Fat Oxidation	Reduces weight gain and BMI, a common symptom.
Srotoshodhana	Improved Circulation and Perfusion	Clears Ama and Kapha obstruction, allowing better delivery of thyroid hormones to target tissues.
Laghava	Enhanced Cardiorespiratory Fitness	Reduces lethargy and fatigue, improving quality of life.[16]

Current research supports this by demonstrating that regular exercise interventions, such as walking, can enhance thyroid function by raising T4 levels and lowering TSH levels, indicating a direct beneficial impact on the hypothalamic-pituitary-thyroid axis. Additionally, exercise is known to regulate oxidative stress and inflammatory pathways, which are frequently linked to the autoimmune aetiology of Hashimoto's thyroiditis, the most prevalent cause of hypothyroidism.[17,18,19]

Counteracting Dhatvagnimandya

In essence, hypothyroidism is a condition in which the Dhatvagnis are not operating at their best, which results in poor tissue formation and the buildup of Mala (waste products). Walking quickly increases the demand for energy and improves circulation, which makes the *Dhatvagnis* work more effectively.

Vyayam's enhanced metabolic activity aids in.

1. Burn Ama: The heat produced during physical activity aids in the breakdown and removal of the accumulated Ama that is blocking the *Srotas*.
2. Normalise Dhatu Formation: By unclogging the channels, Ahara Rasa (nutrients) can more efficiently reach the Dhatus, guaranteeing the correct development of *Rasa, Rakta, Mamsa, and Medas*, among other subsequent tissues.
3. Manage Kapha Vitiation: The Ruksha (dry) and Ushna (hot) qualities of *Vyayam* directly oppose the Snigdha (oily) and *Sheeta* (cold) qualities of the vitiated Kapha Dosha responsible for the disease's manifestation.[21]

Walking Quickly as a Customised Vyayam

For those with hypothyroidism, the idea of practicing *Vyayam* at Ardha-shakti is essential. Walking at a pace that raises the heart rate but permits conversation is known as brisk walking, and it usually falls well within this range. This avoids overdoing it, which could result in *Vyayama* Janita Vata *Prakopa* (aggravation of Vata due to excessive exercise), which would be harmful to a patient who already has a crippling, chronic illness. Brisk walking is a sustainable lifestyle intervention that is essential to the long-term management of a chronic condition like hypothyroidism because of its accessibility and ease of use.[22]

Hypothyroidism Management: Integrative Perspective

Combining Ayurvedic and modern endocrinology provides a better solution for treatment of hypothyroidism because levothyroxine supplements are effective for the deficiency of hormone(s), and *Vyayam* is a treatment for Metabolic Environment.

Dinacharya's External Role

The Ayurvedic tradition places emphasis on a *Dinacharya* or a daily routine. Walking briskly in the early morning at the *Brahmamuhurta* time helps clear the Kapha elements that build up in the body. Taping into this energy will counter the slow feeling many people with hypothyroidism have early in the day.[23]

Clinical Implications

Clinicians should look at using walking as an adjunct to Hormone Replacement Therapy by tracking levels of TSH and T4 through regular testing as well as monitoring patient improvement in Agni through appetite/digestion levels and energy.

CONCLUSION

The Ayurvedic understanding of hypothyroidism is that it is primarily result of *Agnimandya* and Dhatvagnimandya, which lead to systemic metabolic deficiency. The Ayurvedic way of doing *Vyayam* includes the use of Brisk Walking; it is proven scientifically to be an effective and valid way to improve the underlying metabolic deficiency in hypothyroidism.

Brisk walking has an Agni-stimulating effect (*Diptagnitvam*); it helps lower excess Meda (Fat) *(Medakshaya*); it promotes the removal of waste from the body (*Srotoshodhana*); all these effects of brisk walking directly contrast with the Kapha-dominant way in which hypothyroidism develops. The integration of the scientific literature—evidence that Brisk Walking enhances TSH and T4 hormone production—with the ancient wisdom of the Ayurveda validate that Brisk Walking should be considered an integral part of the comprehensive treatment plan for persons diagnosed with hypothyroidism. In future research, prospective randomised controlled studies should examine the effects of combining Brisk Walking with specific Ayurvedic treatments to determine the combined effect on thyroid function and quality of life.

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