



Review Article

DIPANA, PACHANA, AGNI, AND METABOLISM: A SYNERGISTIC PERSPECTIVE ON HEALTH

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ABSTRACT

In Ayurveda, *Agni* encompasses the processes within the body that facilitate the digestion of food, assimilation of nutrients, and efficient elimination of waste. This vital concept not only influences the physical breakdown of food but also extends its impact to mental clarity, immune system resilience, and overall vitality. In fact, *Agni* is crucial for good health, because even minor deviations from an optimum level can have catastrophic effects like reduced nutrition metabolism rate, gathering of toxins referred to as *Ama*, or the beginning of chronic illnesses. Viewing *Agni* through a contemporary lens reveals its broader relevance as a holistic representation of metabolic functions, encompassing enzymatic processes, gut microbiome health, and the efficiency of mitochondria. The Ayurvedic principles of *Dipana*, emphasizing the enhancement of the digestive fire, and *Pachana*, focused on metabolizing toxins, serve pivotal roles in sustaining optimal health and vibrancy. These concepts align remarkably with modern scientific insights into metabolism, which essentially acts as the biochemical powerhouse fueling our body. Studying deeper into this connection unveils fascinating parallels, such as how *Dipana's* principles are akin to the benefits derived from exercise, and how *Pachana's* attributes mirror the effects of fasting on the body. The concept of *Agni* serves as a unifying thread that intertwines these elements, forming a comprehensive understanding of how our body's metabolic processes impact our overall health. This article aims to delve into an in-depth analysis of these interconnected aspects along with their profound effects on our physical well-being.

INTRODUCTION

The concept of *Agni* in Ayurveda correlates closely with the modern understanding of metabolism. In Ayurveda, *Agni* refers to the biological fire or digestive force responsible for all metabolic processes in the body, including digestion, absorption, assimilation, and transformation of food into energy and nutrients. Here's how *Agni* aligns with metabolism:

Agni and Metabolic Variability

In Ayurveda, *Agni* is classified into different types:

- **Jatharagni (digestive fire):** Controls digestion in the stomach and gut. It corresponds to basal metabolic activity in modern physiology, determining how efficiently food is broken down.

- **Dhatu Agni (tissue metabolism):** Refers to metabolic processes at the tissue level, such as how nutrients are absorbed and converted into body tissues like muscle, fat, or bone.
- **Bhuta Agni (elemental metabolism):** Relates to the breakdown and assimilation of the five elements (*Pancha mahabhutas*) in food, akin to nutrient-specific metabolic pathways.

Modern science categorizes metabolism into anabolism (building up) and catabolism (breaking down), mirroring the transformative functions of *Agni*.

As we go through the classical texts it is clearly mentioned that this *Agni* in a deranged state is a potential cause for disease formation, whereas *Agni* in a balanced will offer longevity. Acharya charaka explains it as

शान्तेऽग्नौ म्रियते, युक्ते चिरं जीवत्यनामयः।
रोगी स्याद्विकृते, मूलमग्निस्तस्मान्निरुच्यते॥ ¹(C.S.Ci 15/4)

If the *Agni* is functioning normally, the person can live a long and healthy life; if it ceases functioning, the person dies. Likewise, if the *Agni* is out of balance,

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the person experiences a number of illnesses; for this reason, the *Agni* is considered the primary factor influencing lifespan and good health.

May be this is the reason why *Agnidipana* and *Amapachana* is given utmost importance in treating a diseases. We should see this concept not only in a curative aspect but also in preventive perspective in maintaining the health and metabolism. In our everyday practice, we employ the *Dipana Pachana* idea as the first line of treatment regimen. Let's examine the other viewpoint.

Dipana and Exercise: Igniting the Digestive Fire

पचेन्नामं वह्निकृच्च दीपनं |²(S.S.Pu 4/1)

The term *Dipana* means "kindling the fire" and refers to practices or substances that stimulate *Agni*. Traditionally, herbal preparations like *Mishi*, *Citraka* are used as *Dipana* agents to invigorate digestion. However, exercise serves as a powerful modern correlate to *Dipana*, offering a natural way to boost metabolic efficiency.

Exercise and Its *Dipana* Effect

लाघवं कर्मसामर्थ्यं दीप्तोऽग्निर्मेदसः क्षयः|

विभक्तघनगात्रत्वं व्यायामादुपजायते||³(A.H.Su 2/10)

Vagbhata outlines the effects of *Vyayama* on the body in detail. In addition to reducing excess fat, it also adds lightness, stability, and-most importantly-*Diptagni*, which suggests that the body's metabolism-one of the essential elements of life is improved.

Exercise in improving metabolism with special reference to *Jatharaagni*

- **Enhancing Circulation:** Exercise improves blood flow to the digestive organs, enhancing enzymatic activity and nutrient absorption, akin to stoking a fire with oxygen.
- **Boosting Mitochondrial Function:** Regular physical activity increases mitochondrial efficiency, the cellular powerhouses responsible for energy production, paralleling the strengthening of *Agni*.
- **Reducing Sluggish Digestion:** Like Ayurvedic herbs, exercise combats *Manda agni* (sluggish digestive fire) by stimulating peristalsis and promoting efficient digestion.

Exercise Effects on Body Metabolism with Special Reference to *Dhatwagni*

Exercise plays a significant role in enhancing body metabolism, and its effects can be beautifully explained through the Ayurvedic concept of *Agni*, particularly *Dhatu Agni*, which governs tissue-level metabolism. Here's a breakdown of how exercise influences metabolism from both modern and Ayurvedic perspectives:

1. Exercise and Increased Metabolism

In modern science, exercise boosts metabolic rate by:

- Increasing energy expenditure during physical activity.

- Enhancing post-exercise oxygen consumption (EPOC), leading to sustained calorie burn.
- Stimulating fat oxidation and glucose utilization.

In Ayurveda, this effect can be attributed to the stimulation of *Dhatu Agni*, which ensures proper nourishment, transformation, and maintenance of tissues (*Dhatus*).

2. Impact on *Dhatu Agni* (Tissue Metabolism)

Each tissue (*Dhatu*) in the body relies on its respective *Agni* to metabolize nutrients and maintain health. Exercise affects *Dhatu Agni* as follows:

- ❖ *Rasa Dhatu* (Plasma/Fluid Tissue) - प्रीणनं-तृप्तिः⁴
 - Effect of Exercise: Enhances circulation and detoxifies *Rasa* by improving blood and lymph flow.
 - Agni Perspective: Stimulated *Rasa Dhatu Agni* ensures proper hydration and nutrient transport.
- ❖ *Rakta Dhatu* (Blood Tissue) - जीवनं-प्राणधारणम्, रक्तस्य|⁵
 - Effect of Exercise: Increases oxygen delivery and hemoglobin production, improving vitality.
 - Agni Perspective: Supports *Rakta Dhatu Agni* to maintain healthy blood composition and eliminate toxins.
- ❖ *Mamsa Dhatu* (Muscle Tissue) - लेपो-भित्तेर्मृत्तिकयेव, मांसस्य|⁶
 - Effect of Exercise: Promotes muscle growth (anabolism) and reduces muscle wasting (catabolism).
 - Agni Perspective: Boosts *Mamsa Dhatu Agni* for proper nutrient absorption and muscular strength.
- ❖ *Meda Dhatu* (Fat Tissue) - स्नेहः-स्निग्धत्वम्, मेदसः|⁷
 - Effect of Exercise: Reduces excess fat and improves lipid metabolism.
 - Agni Perspective: Strengthens *Meda Dhatu Agni*, preventing fat accumulation and ensuring energy balance.
- ❖ *Asthi Dhatu* (Bone Tissue)-धारणं-अवलम्बनम्, अस्थनः|⁸
 - Effect of Exercise: Improves bone density and mineralization.
 - Agni Perspective: Activates *Asthi Dhatu Agni*, enhancing bone health and reducing risk of fractures.
- ❖ *Majja Dhatu* (Bone Marrow and Nervous Tissue) - पूरणं-अस्थिपूरणम्, मज्जः|⁹
 - Effect of Exercise: Enhances cognitive function, neuroplasticity, and nervous system health.
 - Agni Perspective: Balances *Majja Dhatu Agni* for optimal brain function and immunity.
- ❖ *Shukra Dhatu* (Reproductive Tissue) - गर्भोत्पादः-शुक्रस्य|¹⁰
 - Effect of Exercise: Supports hormonal balance and reproductive health.

- Agni Perspective: Strengthens *Shukra Dhatu Agni* to maintain reproductive vitality and overall vigor. Both Ayurveda and modern science agree that a well-stoked digestive fire is essential for vitality and bestows the body with its benefits. Just as *Dipana* restores balance to *Agni*, exercise regulates metabolism, ensuring optimal energy production and waste elimination.

Pachana And Fasting: Burning Away Toxins

लङ्घनैः क्षपिते दोषे दीप्तेऽग्नौ लाघवे सति।

स्वास्थ्यं क्षुत्तृड् रुचिः पक्तिर्बलमोजश्च जायते।¹¹ (A.H.Ci 1/3)

Upavasa being a *Langhana* therapy helps to increase the *Agni* and balances the *Tridoshas*. Hence it increases *Swasthya*, *Kshudha*, *Trishna*, *Ruchi*, *Agnibala*, and *Oja*.

लङ्घनपाचनाभ्यां हि सूर्यसन्तापमारुताभ्यां पांशुभस्मावकिरणैरिव चानतिबहूदकं मध्यबलो दोषः प्रशोषमापद्यते।¹² (C.S.Vi 3/44)

Langhana pachana is indicated in disorders of moderate morbidity. Through this combined therapy involving *Langhana* and stimulated digestion, disorders of moderate morbidity are dried up "like a sink that is acted upon by the sun and wind on the one hand, and by a sprinkling of dust and ashes on the other".

पचत्यामं न वह्निं च कुर्याद्यत्तद्धि पाचनम्।¹³ (S.S.Pu 4/2)

Pachana refers to the burning or elimination of accumulated toxins (*Ama*) through metabolic processes. Traditionally, this is achieved with herbs like *Nagakeshara*, *Citraka*, *Sunthi* which promote detoxification. Fasting, a practice recommended in Ayurveda and validated by modern science, acts as a potent *Pachana* tool.

Fasting as Pachana

- **Autophagy Activation:** Fasting triggers autophagy, a cellular process where damaged proteins and toxins are broken down and recycled, aligning perfectly with *Pachana's* role in removing *Ama*.
- **Balancing Agni:** Controlled fasting rests the digestive system, allowing *Agni* to reset and function optimally, preventing toxin buildup from incomplete digestion.
- **Metabolic Reset:** Fasting improves insulin sensitivity and lipid metabolism, paralleling the Ayurvedic goal of balancing *Agni* to maintain metabolic harmony.

Fasting Effect on Body Metabolism with Special Reference to Agni

Fasting is a practice that influences metabolism profoundly, and its effects can be understood both in modern scientific terms and through the Ayurvedic concept of *Agni*. Fasting, when done correctly, can kindle and balance *Agni*, leading to improved digestion, detoxification, and metabolic efficiency.

Fasting and Agni

In Ayurveda, fasting (*Upavasa*) is recognized as a method to rekindle *Agni* by giving the digestive system rest and eliminating accumulated *Ama* (toxins). Fasting affects *Agni* and metabolism in the following ways:

- ❖ **Rekindling Jatharagni (Digestive Fire)**
 - During fasting, undigested food (*Ama*) is metabolized, clearing blockages in digestive pathways.
 - By resting the digestive system, fasting allows *Jatharagni* to regain strength and efficiency.
 - This parallels the modern concept of "metabolic reset," where energy is redirected from digestion to repair processes.
- ❖ **Enhancing Dhatu Agni (Tissue-Level Metabolism)**
 - **Improved Nutrient Processing:** Fasting supports the efficient transformation of nutrients at the tissue level, ensuring optimal health of the *Dhatu*s (tissues).
 - **Fat Metabolism (Meda Dhatu):** Fasting burns excess *Meda Dhatu* (fat tissue) through fat oxidation and ketogenesis, preventing *Kapha* imbalances.
 - **Detoxification:** By kindling tissue-specific *Agni*, fasting aids in clearing toxins from deeper tissues like *Majja Dhatu*.
- ❖ **Balancing Ama (Toxic Metabolic Waste)**
 - When *Agni* is weak, metabolic waste (*Ama*) accumulates, causing sluggishness, poor digestion, and disease. Fasting eliminates *Ama* by rekindling *Agni*.
 - Fasting aligns with detoxification mechanisms in modern science, such as the activation of autophagy and reduction in inflammation.

Fasting and Modern Metabolism

From a physiological perspective, fasting impacts metabolism in several ways:

- **Shifts in Energy Source:** During fasting, the body switches from glucose metabolism (glycogen) to fat metabolism (lipolysis and ketogenesis).
- **Improved Insulin Sensitivity:** Fasting enhances the body's response to insulin, improving glucose metabolism.
- **Autophagy Activation:** Fasting stimulates autophagy, a cellular "cleansing" process that removes damaged cells and regenerates tissues.
- **Reduction in Metabolic Waste:** Fasting lowers oxidative stress and reduces the production of metabolic byproducts.

DISCUSSION

The Interplay of Dipana, Pachana, Agni, and Metabolism

Both *Dipana* and *Pachana* are integral to maintaining a healthy *Agni*. Exercise and fasting

complement each other by supporting these Ayurvedic principles in the following ways:

- 1. Synergistic Activation of Metabolism:** Exercise (*Dipana*) boosts energy expenditure and enhances metabolic rate, while fasting (*Pachana*) clears metabolic debris, ensuring a clean and efficient system.
- 2. Gut Health Optimization:** Exercise improves gut motility and microbiome diversity, and fasting provides the gut time to repair, creating a balanced environment for *Agni*.

Practical Applications

To integrate *Dipana* and *Pachana* into daily life, one might adopt the following practices:

- **Exercise Daily:** Moderate aerobic activity or yoga can stoke *Agni*, aiding digestion and energy production.
- **Periodic Fasting:** Intermittent fasting (e.g., a 16:8 protocol) allows the digestive system to rest, promoting toxin elimination and metabolic balance.
- **Mindful Eating:** Eating freshly cooked, warm, and easily digestible foods enhances *Dipana* and prevents *Ama* accumulation.
- **Herbal Support:** Drugs like *Citraka*, *Sunthi*, *Nagakehasra*, *Pippali* etc., can be included in meals to act as natural *Dipana* and *Pachana* agents.

Prevention of Metabolic Disorders: By combining exercise and fasting, one can regulate weight, improve insulin sensitivity, and reduce inflammation-preventing conditions like obesity and diabetes, which Ayurveda attributes to weak or imbalanced *Agni*.

CONCLUSION

Deep insights on preserving metabolic health through exercise and fasting can be gained from the Ayurvedic concepts of *Dipana* and *Pachana* respectively. We may attain balanced *Agni* and a strong metabolism by igniting the digestive fire with *Dipana* practices like exercise and expelling impurities with *Pachana* practices like fasting. This balance guarantees not just physical health but also mental acuity and vitality, which is an enduring example of how

traditional knowledge and contemporary science may work together harmoniously.

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