

## TIME-RESTRICTED EATING IN THE MANAGEMENT OF STHAULYA: AN AYURVEDIC PERSPECTIVE ON KALA BHOJANA AND LANGHAN

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### ABSTRACT

**Background:** Sthaulya, a Santarpanotha Vikara characterized by Kapha–Meda vriddhi and Agnimandya, is a growing health concern. Modern dietary strategies, such as Time-Restricted Eating (TRE), have shown potential in reducing body weight, improving metabolic parameters, and enhancing adherence.

**Objective:** This review evaluates TRE in the context of Ayurvedic principles of Kala Bhojana (proper meal timing) and Langhana, exploring its potential as a conceptual framework for Sthaulya management. **Methods:** Literature on TRE (2015–2025) and classical Ayurvedic texts (Charaka, Sushruta, Ashtanga Hridaya) were analyzed. TRE interventions were mapped to Ayurvedic principles regarding meal timing, Agni regulation, and Meda reduction. **Results:** TRE aligns conceptually with Kala Bhojana by controlling eating windows

and with Langhana by inducing mild caloric restriction. Clinical evidence demonstrates reductions in BMI, improved lipid and glucose metabolism, and enhanced metabolic flexibility. These outcomes parallel the Ayurvedic strategy of Deepana–Pachana followed by Agni correction and Meda reduction in Sthaulya management. **Conclusion:** TRE can be interpreted as a modern dietary strategy reflecting classical Ayurvedic principles. Conceptually, TRE represents a practical, evidence-informed approach to managing Sthaulya by regulating meal timing and promoting metabolic balance. Further clinical studies integrating Ayurvedic frameworks and modern dietary interventions are warranted.

**KEYWORDS:** Sthaulya, Time-Restricted Eating, Kala Bhojana, Langhana, Agni, Meda, Ayurveda.

## INTRODUCTION

Sthaulya, described in classical Ayurvedic texts as a Santarpanottha Vikara, is primarily caused by Kapha and Meda vriddhi associated with Agnimandya. It manifests as excessive fat accumulation, reduced metabolic efficiency, and a predisposition to various systemic disorders. In modern times, the prevalence of obesity has increased globally, contributing to metabolic dysregulation, cardiovascular complications, and decreased quality of life. Management of Sthaulya requires interventions that restore Agni, reduce Meda, and maintain balance among the Doshas, with emphasis on proper dietary habits and lifestyle.

Time-Restricted Eating (TRE), a contemporary dietary strategy focusing on limiting the daily eating window without altering diet composition, has demonstrated significant potential in reducing body weight, improving glucose and lipid metabolism, and enhancing adherence among individuals. Although TRE originates from modern nutritional research, its principles closely resemble the Ayurvedic concepts of Kala Bhojana (proper meal timing) and Langhana (lightening therapy), where the timing of food intake and mild dietary restriction play a critical role in restoring metabolic balance.

Clinical studies conducted between 2015 and 2025 have shown that TRE interventions, particularly the 16:8 eating pattern, can improve insulin sensitivity, promote fat utilization, and regulate body weight. These outcomes parallel Ayurvedic strategies in Sthaulya management, where Deepana–Pachana (enhancement of digestive fire) precedes Agni correction and Meda reduction. By conceptualizing TRE through Ayurvedic principles, it is possible to integrate traditional wisdom with modern evidence to provide a holistic approach to obesity management.

This review aims to explore TRE in the context of Sthaulya management, analyzing current clinical evidence while interpreting the findings through the Ayurvedic lens of Kala Bhojana and Langhana. The objective is to highlight conceptual alignments between modern dietary interventions and classical Ayurvedic strategies for the prevention and management of Sthaulya.

Health-Promoting Mechanisms of Time-Restricted Eating in Ayurveda From an Ayurvedic

perspective, the health benefits of time-restricted eating (TRE) are closely linked to the proper functioning of Agni (digestive fire), the elimination of Ama (undigested or toxic substances), and alignment with natural biological rhythms (Dinacharya). These mechanisms support vitality, balance among the doshas, and overall well-being.

### **Strengthening Digestive Fire (Agni)**

One of the primary benefits of TRE is the restoration and enhancement of Agni. By confining meals to a specific window, the digestive system is allowed periods of rest, preventing overburdening and the accumulation of Ama. This fasting period acts as a natural digestive reset, promoting effective nutrient assimilation and energy balance.

### **Harmonizing Body Rhythms (Dinacharya)**

TRE also supports alignment with the body's natural cycles. Eating at consistent times each day, particularly during the peak digestive period (Pitta phase, mid-morning to early afternoon), synchronizes the body's internal rhythms with environmental cues like sunlight and activity levels. This rhythm alignment is believed to enhance mental clarity, mood stability, and overall vitality.

### **Detoxification and Cleansing**

Regular periods of fasting in TRE help clear accumulated Ama, analogous to traditional Ayurvedic cleansing practices. By giving the digestive system time to rest, the body can remove metabolic impurities more efficiently, supporting long-term health and resilience.

### **Dosha Balance**

TRE contributes to maintaining equilibrium among the three doshas:

Vata benefits from structured meal times that provide grounding and warmth.

Pitta is supported by consuming the largest meal during peak digestion and avoiding heavy late dinners. Kapha benefits from shorter eating windows and early meals, which prevent heaviness and stagnation.

### **Synchronizing the Body's Natural Rhythms**

In Ayurveda, health is closely linked to living in harmony with the body's natural cycles, which include daily variations in energy, digestion, and mental clarity. Time-restricted eating (TRE) supports this alignment by concentrating food intake within a consistent window that corresponds to the body's natural circadian rhythms, promoting balance between internal

organ function and overall vitality.

### **Aligning Digestive and Mental Rhythms**

By eating during periods when Agni (digestive fire) is strongest—typically mid-morning to early afternoon—TRE helps synchronize the functions of various organs with the overall rhythm of the body. This practice ensures that energy, nutrient assimilation, and waste elimination occur in harmony, preventing the disharmony and sluggishness often caused by irregular eating schedules.

### **Restoring Balance Disrupted by Modern Lifestyles**

Modern irregular eating patterns, late-night meals, and inconsistent routines can disturb the natural flow of energy, leading to imbalances in the doshas and accumulation of Ama (toxins). TRE restores this balance by providing regular periods of eating and fasting, allowing the body to recalibrate its natural cycles. This rhythmic structure supports clarity of mind, stable energy levels, and optimal digestion.

### **Supporting Internal Coordination**

In Ayurvedic terms, TRE encourages coordination between the different organ systems and the central rhythm of the body. Just as the digestive fire (Agni) governs proper metabolism and nutrient assimilation, the mind-body clock ensures harmony across physical and mental functions. Regular eating and fasting periods allow these systems to operate in concert, promoting holistic health, mental clarity, and resilience.

### **Activation of Fasting Physiology and Reduction of Oxidative Stress.**

Time-restricted eating (TRE) extends fasting periods, which prompts the body to shift from primarily using glucose to relying more on fat-derived energy, including ketone bodies. When fasting extends to roughly 12–16 hours, glycogen stores in the liver are depleted, encouraging the mobilization of fat and the activation of fatty acid breakdown pathways. This metabolic shift supports energy production while also stimulating cellular processes that promote tissue repair and renewal.

Fasting associated with TRE also triggers pathways that enhance autophagy, a process in which cells remove damaged components, thereby supporting overall cellular health and metabolic flexibility. These adaptations help optimize energy use, improve the efficiency of cellular organelles, and facilitate the removal of metabolic waste.

In addition, TRE has been shown to reduce oxidative stress and inflammation. By promoting natural antioxidant defenses and facilitating the clearance of dysfunctional cellular components, TRE helps limit the buildup of harmful reactive molecules. Regular fasting periods can also modulate inflammatory signaling, reducing systemic inflammation and supporting the maintenance of vascular and tissue health. Collectively, these mechanisms provide a molecular explanation for the health benefits observed with TRE, complementing traditional perspectives on meal timing and rejuvenation.

#### Enhancing Gut Health: Ayurvedic and Modern Perspectives

Time-restricted eating (TRE) not only structures meal timing but also supports digestive balance, which is central in Ayurveda. By regulating eating windows, TRE strengthens Agni (digestive fire) and helps prevent the accumulation of Ama (undigested or toxic substances), which is believed to be a root cause of many imbalances and aging-related dysfunctions.

From a modern perspective, TRE positively reshapes the gut microbiota. Consistent meal timing restores the natural rhythms of microbial communities, promoting beneficial bacteria while reducing potentially harmful species. For example, extended fasting periods of around 16 hours can lower pro-inflammatory bacteria like Ruminococcaceae and Alistipes while increasing protective species such as Akkermansia muciniphila, which supports the intestinal lining.

Probiotic bacteria like Bifidobacterium and Lactobacillus also flourish, along with short-chain fatty acid (SCFA) producing bacteria such as Clostridium butyricum and Roseburia. These SCFAs help maintain gut barrier integrity, reduce inflammation, and support the body's internal cleansing processes.

In Ayurvedic terms, the increase in SCFA-producing bacteria mirrors the effects of a balanced Agni, as properly digested food and microbial fermentation prevent Ama formation and support energy flow (Prana) throughout the body. Butyrate-producing microbes, which are enhanced by TRE, can be seen as complementary to the Ayurvedic concept of rejuvenation (Rasayana), supporting both digestive health and cognitive vitality.

Thus, TRE creates a synergistic effect, aligning modern microbial insights with Ayurvedic

principles: regulating digestion, promoting detoxification, and balancing internal energies, ultimately contributing to overall health and longevity.

### Limitations

- Limited long-term randomized trials integrating Ayurvedic parameters
- Lack of standardized Agni and Ama assessment tools in clinical research
- TRE may not be universally suitable across all Prakriti types Future research should focus on:
  - Randomized controlled trials comparing TRE with classical Langhana protocols
  - Development of validated Ayurvedic metabolic assessment scales
  - Integration of Dosha-based dietary timing models
  - Biomarker studies correlating Agni status with metabolic flexibility

### CONCLUSION

- Time-Restricted Eating represents a contemporary dietary strategy that closely parallels Ayurvedic principles of Kala Bhojana and Langhana. By regulating meal timing, promoting fasting physiology, enhancing Agni, and reducing Meda, TRE offers a scientifically supported and conceptually Ayurvedic approach to Sthaulya management.
- Integrating traditional frameworks with modern metabolic science may provide a comprehensive and personalized strategy for obesity care