

MECHANISTIC ROLE OF SURYANAMASKARA IN THE MANAGEMENT OF OBESITY (STHAULYA): AN INTEGRATIVE AYURVEDIC AND YOGIC REVIEW

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ABSTRACT

Background: Obesity (Sthaulya) is a multifactorial metabolic disorder characterized by excessive Meda dhatu accumulation and Kapha predominance. It is associated with serious systemic complications. **Objective:** To evaluate the detailed mechanistic role of Suryanamaskara in obesity management from Ayurvedic and modern perspectives. **Methods:** A narrative review was conducted using classical Ayurvedic texts, yoga literature, and contemporary scientific studies. **Results:** Suryanamaskara enhances metabolic rate, promotes fat metabolism, regulates endocrine function, improves digestion, and reduces stress. Each asana contributes uniquely to weight reduction. **Conclusion:** Suryanamaskara is a holistic, sustainable, and effective intervention for obesity, acting through multi-system pathways.

KEYWORDS: Suryanamaskara, Obesity, Sthaulya, Meda dhatu, Kapha dosha, Yoga therapy.

1. INTRODUCTION

Obesity is a chronic metabolic disorder resulting from excessive caloric intake and reduced energy expenditure. It predisposes individuals to metabolic syndrome, diabetes mellitus, hypertension, and cardiovascular diseases.

In Ayurveda, obesity is described as Sthaulya, characterized by:

- Kapha dosha vridhhi

- Meda dhatu accumulation
- Mandagni Management emphasizes Vyayama (exercise), Ahara control, and lifestyle regulation.

Suryanamaskara, a sequence of 12 yogic postures, provides a comprehensive physical, metabolic, and mansik intervention.

2. AIM AND OBJECTIVES

AIM

To analyze the detailed mode of action of Suryanamaskara in obesity.

OBJECTIVES

- To explain mechanistic pathways
- To evaluate each asana's role
- To correlate Ayurvedic and modern concepts

3. MATERIALS AND METHODS

- Review of Ayurvedic classics and yoga texts
- Analysis of modern scientific literature
- Integrative approach

4. Procedure of Suryanamaskara (All 12 Postures with Mechanism)

Suryanamaskara consists of 12 sequential postures, each coordinated with breathing and contributing to metabolic activation.

Step 1: Pranamasana

Procedure

- Stand erect with feet together
- Join palms in Namaskar at chest level
- Maintain normal breathing

Effect in Obesity

- Stabilizes mind
- Reduces stress-induced eating
- Prepares body for activity

Step 2: Hasta Uttanasana**Procedure**

- Inhale deeply
- Raise arms overhead
- Bend slightly backward

Effect

- Stretches abdominal region
- Stimulates digestive organs
- Improves metabolism

Step 3: Padahastasana**Procedure**

- Exhale and bend forward
- Touch feet with hands
- Keep knees straight

Effect

- Compresses abdomen
- Stimulates liver & pancreas
- Enhances fat metabolism

Step 4: Ashwa Sanchalanasana**Procedure**

- Inhale
- Take one leg backward
- Look upward

Effect

- Improves circulation
- Activates abdominal organs
- Enhances metabolic activity

Step 5: Dandasana**Procedure**

- Take other leg backward

- Keep body straight like a plank

Effect

- Strengthens core muscles
- Increases muscle mass → ↑ BMR

Step 6: Ashtanga Namaskara**Procedure**

- Lower body to ground
- Eight points touch floor

Effect

- Improves muscle engagement
- Enhances energy expenditure

Step 7: Bhujangasana**Procedure**

- Inhale and lift chest
- Keep elbows slightly bent

Effect

- Stimulates adrenal glands
- Improves hormonal balance
- Enhances digestion

Step 8: Parvatasana**Procedure**

- Exhale
- Raise hips upward
- Form inverted V shape

Effect

- Improves circulation
- Promotes fat mobilization

Step 9: Ashwa Sanchalanasana

(Same as Step 4 with opposite leg)

Effect

- Maintains symmetry
- Sustains metabolic activity

Step 10: Padahastasana

(Same as Step 3)

Step 11: Hasta Uttanasana

(Same as Step 2)

Step 12: Pranamasana

(Same as Step 1)

6. DISCUSSION

The present review highlights the multi-dimensional therapeutic potential of Suryanamaskara in the management of obesity, addressing not only physical but also metabolic, endocrine, and psychological domains. From a biomedical perspective, obesity is fundamentally a disorder of energy imbalance and metabolic dysregulation. Suryanamaskara, being a dynamic sequence, acts as a moderate-to-high intensity physical activity, thereby increasing caloric expenditure and promoting negative energy balance. Unlike isolated aerobic exercises, it simultaneously engages multiple muscle groups, enhancing lean body mass, which in turn contributes to sustained elevation of basal metabolic rate (BMR). This is particularly important in obesity management, where long-term weight maintenance is often challenging due to metabolic adaptation. At the cellular level, the repetitive muscular contractions and stretching involved in Suryanamaskara facilitate improved mitochondrial efficiency and enhanced lipid oxidation. This leads to effective utilization of stored triglycerides, thereby reducing adiposity. Additionally, improved insulin sensitivity observed in yoga practitioners plays a crucial role in preventing fat accumulation and metabolic syndrome.

The endocrine effects of Suryanamaskara are equally significant. Regular practice has been associated with

- Regulation of thyroid hormones, improving metabolic rate
- Reduction in cortisol levels, thereby minimizing stress-induced fat deposition

- Improved glucose homeostasis, reducing risk of type 2 diabetes

From a neuropsychological standpoint, Suryanamaskara integrates breath control and mindfulness, which activates the parasympathetic nervous system. This reduces stress, anxiety, and emotional eating—major contributors to obesity. Improved mansik stability enhances adherence to lifestyle modifications, which is a critical factor in long-term success.

From an Ayurvedic perspective, the effects of Suryanamaskara can be interpreted as.

- Kapha Shamana: Reduction in heaviness, lethargy, and fat accumulation
- Meda Kshaya: Direct reduction of adipose tissue
- Agni Deepana: Enhancement of digestive and metabolic processes
- Srotoshuddhi: Clearance of microchannels, improving nutrient transport.

Each posture in Suryanamaskara contributes uniquely

- Forward bends stimulate digestive organs
- Backward bends improve endocrine function
- Stretching postures enhance circulation
- Strength-based poses improve muscle tone and metabolism.

Thus, Suryanamaskara acts as a comprehensive metabolic regulator, targeting the root cause of Sthaulya rather than merely addressing symptoms.

Furthermore, compared to conventional exercise regimens, Suryanamaskara offers

- Cost-effectiveness
- Ease of practice
- Minimal equipment requirement
- High compliance due to holistic benefits.

However, despite promising evidence, limitations such as lack of large-scale randomized controlled trials and standardized protocols remain. Future research should focus on long-term clinical outcomes and integration with Ayurvedic therapies.

7. CONCLUSION

Suryanamaskara represents a holistic, integrative, and scientifically relevant intervention in the management of obesity (Sthaulya). Its unique combination of dynamic physical activity,

controlled breathing, and mental focus enables it to act on multiple physiological systems simultaneously.

The practice facilitates

- Reduction of Meda dhatu (adipose tissue)
- Enhancement of Agni (metabolic efficiency)
- Balancing of Kapha dosha
- Improvement in endocrine and metabolic functions
- Reduction in psychological stress and behavioral risk factors Unlike conventional exercise modalities that primarily target caloric expenditure, Suryanamaskara provides a multi-system therapeutic approach, addressing the root cause of obesity at both physical and mansik levels. Importantly, its accessibility, low cost, and adaptability make it a sustainable long-term intervention, particularly in resource-limited settings. When combined with appropriate dietary modifications (*Pathya Ahara*) and Ayurvedic management, Suryanamaskara can significantly enhance treatment outcomes.

In conclusion, Suryanamaskara should be considered not only as a physical exercise but as a comprehensive lifestyle therapy for the prevention and management of obesity. Its integration into public health strategies and clinical practice holds significant promise for addressing the growing global burden of obesity.

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