

PREVENTING MADHUMEHA (TYPE 2 DIABETES MELLITUS) THROUGH ACTIVE LIVING: A CALL FOR LIFESTYLE MODIFICATIONS

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ABSTRACT

India is the global centre for diabetes.^[1] Madhumeha, a subtype of Prameha in Ayurveda, correlates closely with Type 2 Diabetes Mellitus (T2DM), a global health concern driven by sedentary lifestyles and poor dietary habits. Ayurveda identifies Santarpanajanya etiologies for Prameha, emphasizing Kapha and Meda imbalance and highlight sedentary behavior as a key etiological factor, causing dosha imbalances and metabolic dysfunctions. Modern research affirms the direct link between inactivity, insulin resistance, and systemic inflammation. Strategies like regular exercise, balanced diet, and mindfulness practices rooted in Ayurvedic guidelines offer holistic, sustainable health benefits. This article explores the role of lifestyle modifications, including physical activity and adherence to Ayurvedic principles of Pathya-Apathya (do's and don'ts), in preventing and managing Madhumeha.

INTRODUCTION

The term 'sedentary' is derived from the Latin word 'sedere,' meaning 'to sit.' It refers to any waking behaviour involving sitting or lying with low energy expenditure. In today's fast-paced world, sedentary lifestyle has become a common issue, affecting individuals across

various professions and age groups. While for some, physical inactivity is a personal choice, for many including drivers, office workers, and technology users, it is an occupational necessity. Sedentary habits slow blood flow, promote plaque buildup in blood vessels, reduce enzyme activity responsible for fat metabolism, increase insulin resistance, and weaken muscles from disuse.

Passive activities that contribute to a sedentary lifestyle in modern era includes.

- Watching television for prolonged hours,
- Scrolling through social media while sitting or lying down,
- Eating meals slowly with minimal movement, and
- Going to bed immediately after meals.

According to modern research and Ayurvedic principles, physical inactivity is directly associated with obesity, impaired glycemic control, and systemic inflammation, all key contributors to the development of *Madhumeha* or Type 2 Diabetes Mellitus (T2DM).

In Ayurveda, sedentary behaviour disrupts the body's *dosha* balance, leading to *ama* (toxin) accumulation and weakened *agni* (digestive fire). Prolonged physical inactivity results in *Asyasukham* (comfort from eating), *Swapnasukham* (excessive sleep), *Kledadhikya* (excess moisture), and *Agnimandya* (digestive impairment), which further vitiate *tridoshas* particularly *Kapha* and *Meda* (fat tissue). These imbalances contribute to the manifestation of *Prameha*.^[2] According to Acharya Charaka, *Madhumeha*, a subtype of *Prameha*, is characterized by the passage of excessive urine with qualities resembling honey (sweet and astringent). When other forms of *Prameha* are left untreated, they culminate in *Madhumeha*, an advanced stage of metabolic disorder.

The World Health Organization (WHO) classifies Type 2 Diabetes Mellitus as a chronic metabolic disorder characterized by insulin resistance and elevated blood glucose. Globally, diabetes has reached epidemic proportions. In India alone, over 77 million individuals were diagnosed with diabetes in 2019, and this number is projected to exceed 134 million by 2045. The International Diabetes Federation reported 537 million people living with diabetes in 2021, with estimates of 783 million by 2045.^[3]

Sedentary lifestyles have been identified as a major driver of these statistics. WHO recognizes physical inactivity as one of the top 10 global causes of death and disability. Between 60% and

80% of the global population, including those in both developed and developing nations, lead sedentary lives a growing public health crisis.^[4]

In Ayurveda, early detection and intervention through *nidana parivarjan* (removal of causative factors) and *shodhana* (purification therapies) are emphasized for managing the initial stages of *Prameha*. Lifestyle modifications rooted in Ayurvedic principles including balanced diet, regular physical activity, and tailored therapies empower individuals to prevent and manage *Madhumeha*. Adopting a holistic approach not only enhances long-term outcomes but also significantly improves quality of life.

AIM AND OBJECTIVE

To explore the role of lifestyle modifications in preventing *Madhumeha* through Ayurvedic guidelines for diet, daily routines (*dinacharya*), and seasonal regimens (*ritucharya*) that enhance metabolic health. The promotion of physical activity and to highlight the importance of adopting active living strategies rooted in Ayurvedic principles for sustainable health management.

MATERIAL AND METHODS

This article is based on Ayurvedic Samhitas and relevant modern literature. The classical texts referred to include Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya, Ashtanga Sangraha, Madhava Nidana, Bhavaprakasha, Yogatna kara, and Vangasena Samhita. Modern references on diabetes mellitus were sourced from authoritative medical textbooks, peer-reviewed journals, and credible online databases. Research papers and internet-based resources were also explored to gather evidence on the effectiveness of physical activity and lifestyle changes in managing and preventing Type 2 Diabetes Mellitus.

Nidana (causes)

Aharaj (dietary factors), *Viharaj* (habitual factors)^[5,6,7]

1. *Aharaja Nidana* (Dietary Factors)

Frequent and excessive consumption of

- Newly harvested grains, including Hayanaka, Yavaka, Chinaka, Uddalaka, Naishadha, Itkata, Mukundaka, Mahavrihi, Promodaka, and Sugandhaka.
- Freshly harvested pulses like Harenu (*Pisum sativum* Linn.) and Masha (*Phaseolus radiatus* Linn.), particularly when combined with ghee.

- Heavy or Kapha-promoting foods such as Tila (*Sesamum indicum* Linn.) oil, Tila cakes, pastries, milk-based puddings (Payasa), Krisara (gruel made with sesame, rice, and black gram), thick gruels (Vilepi), and sugarcane-based products.
- Aquatic and marshy animals, milk, new wine, and immature curd.
- Excessively astringent, pungent, bitter, rough, light, and cold foods.
- Meat from domesticated, marshy, and aquatic animals.
- Excessive use of jaggery-based products and any Kapha-enhancing, fatty, or diuretic dietary regimens.

2. *Viharaja Nidana* (Lifestyle Factors)

Habits and activities contributing to *Madhumeha*.

- Excessive use of therapeutic interventions like emesis, purgation, enema (*Asthapana*), and nasal cleansing (*Shirovirechana*).
- Lack of exercise & physical activity.
- Suppressing natural urges, prolonged fasting, and trauma.
- Excessive exposure to sunlight, mental stress, anxiety, grief, and overuse of bloodletting therapies.
- Irregular sleep patterns, including staying awake late at night.
- Excessive sleep, prolonged bed rest, and leading a predominantly sedentary lifestyle.
- Overindulgence in comfort-seeking activities like lounging and frequent sleep.

Lifestyle Modification Through Pathya Apathya

T2DM, primarily affects middle-aged individuals and is characterized by insulin resistance. Managing *Madhumeha* requires a holistic approach where *Pathya- Apathya* plays a vital role in stabilizing blood glucose levels and mitigating complications. This article emphasizes the importance of lifestyle modifications and adherence to *Pathya-Apathya* for the effective prevention and management of *Madhumeha*.^[8]

Category	Pathya (Do's)	Apathya (Don'ts)
Grains (Shooka Dhanya)	Yava (<i>Hordeum vulgare</i>), Truna Dhanya grass-based grains), Godhuma (wheat), odrava (<i>Paspalum scrobiculatum</i>), Shastika Shali (aged rice)	Navina Shali (newly harvested rice), Navina Dhanya (freshly harvested grains)
Legumes (Shami Dhanya)	Chanaka (<i>Cicer arietinum</i>), Arahar (<i>Cajanus cajan</i>), Kulattha (<i>Dolichos biflorus</i>), Mugdha (<i>Vigna radiata</i>), Thuvari (horse gram)	Masha (black gram), Nishpava (<i>Dolichos lablab</i>)
Meat (Mamsa)	Jangala Mamsa (lean meat from wild animals),	Gramya Mamsa (domestic animal)

	Vishkira (gallinaceous birds), Pratuda Mamsa (pucker birds), roasted meats	meat), Oudaka Mamsa (aquatic animal meat), Anupa Mamsa (marshy animal meat)
Milk and Dairy	Takra (buttermilk)	Curd (Dadhi), freshly prepared milk-based puddings
Drinks (Pana)	Madhuudaka (honey water), Sarodaka (water boiled with Khadira), Triphala Rasa, Kushodaka	Ikshurasa (sugarcane juice), milk with sugar, fermented beverages, new wine
Fats & oil	Sarshapa (mustard oil), Atasi (linseed oil), goat meat, Kapota (pigeon), Titira (grey francolin), Harina (deer)	Ghrita (ghee), Tila oil, pastries, Payasa (kheer), sugar-rich gruels
Fruits	Bilva (Aegle Marmelos), Amla (Emblica officinalis), Jambu (Myrtus cumini), Tinduka (Diospyros peregrina)	Mango, banana, papaya, jackfruit, pineapple
Vegetables	Patola (Trichosanthes dioica), Shigru (Moringa oleifera), Methika (Trigonella Foenum), Karavellaka (Momordica charantia)	Potato, heavy and oily vegetables
Lifestyle Vihar)	Vyayama (regular exercise), walking (Chankraman), Asanas (Vajrasana, Paschimottanasana, Ardha Matsyendrasana), Pranayama (Kapalbhati, Bhastrika)	Long sitting (Aasyasukha), daytime sleeping (Divaswapna), staying awake at night (Ratrijagarana), alcohol consumption, avoidance of exercise
Sleep	Adequate sleep (6-8 hours at night)	Excessive sleep, sleeping immediately after meals

DISCUSSION

This study emphasizes that sedentary lifestyles, a significant risk factor for *Madhumeha* (Type 2 Diabetes Mellitus), are influenced by modern living patterns characterized by prolonged inactivity. Ayurvedic principles stress the importance of *nidan parivarjan* (elimination of causative factors) and *pathya-apathya* (do's and don'ts) to manage metabolic disorders. Incorporating regular physical activity, dietary modifications, and tailored lifestyle interventions can prevent the progression of *Madhumeha*.

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