



Role of Diet in Diabetes: An Integrated Perspective of Modern Science and Ayurveda

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Received on 05/04/2025

Accepted on 02/05/2025

Reviewed on 1/07/2025

Published on 15/09/2025

Abstract

Diabetes mellitus (*Prameha/Madhumeha* in *Ayurveda*) is a chronic metabolic disorder influenced strongly by dietary habits and lifestyle. Modern medical science emphasizes individualized, nutrient-balanced dietary approaches such as the Mediterranean diet, low-glycemic index foods, and weight management strategies for glycemic control and prevention of complications. *Ayurveda*, on the other hand, oversights *Ahara* (diet) and *Vihara* (lifestyle) as the first line of management in *Madhumeha*, prescribing *Pathya* (wholesome diet), avoidance of *Apathya* (unwholesome food), and utilization of foods with *Kapha-Medohara* (anti-obesity) and *Pramehaghna* (anti-diabetic) properties. Integrating these approaches can offer a more holistic strategy for prevention, control, and potential remission of diabetes.

Keywords: Diabetes, *Madhumeha*, *Pathya* and *Apathya*, *Ahara-Vihara*

1. Introduction

In contemporary view, Diabetes is characterized by chronic hyperglycemia resulting from insulin deficiency, resistance, or both. Diet plays a crucial role in prevention, glycemic control, weight management, and long-term complication reduction^[1].

In Ayurvedic texts, *Madhumeha* (a subtype of *Prameha*) arises due to *Agnimandya* (impaired digestion), *Kapha–Medo dushti* (vitiating of *Kapha* and *Meda*), and *Ojokshaya* (depletion of vitality). In classics, improper dietary patterns such as *Ati-madhura* (excess sweet), *Ati-sneha* (excess fatty foods), and *Ati-sheeta* (cold, heavy meals) are considered causative^[2].

2. Role of Diet in Prevention

- Modern Perspective^[3, 4, 5]
 - Structured lifestyle programs (e.g., Diabetes Prevention Program) reduce diabetes incidence by ~58%.
 - Mediterranean diet and calorie-controlled plans prevent progression from prediabetes.
 - Key preventive foods: whole grains, legumes, vegetables, fruits, nuts, seeds, and unsweetened dairy.
- Ayurvedic Perspective^[6]
 - Prevention is emphasized through *Nidana Parivarjana* (avoiding causative factors): avoiding excessive sweets, heavy curd, fried foods, day sleep, and sedentary lifestyle.
 - *Pathya* food recommendations for prevention include:
 - Shimbi dhanya (pulses like *Mudga*/green gram, *Masura*/lentils)

- *Yava* (barley), *Godhuma* (wheat), *Shastika shali* (red rice)
- *Tikta–Kashaya rasa* (bitter–astringent foods) like *neem*, *karela* (*Momordica charantia*), *methi* (fenugreek).

3. Role of Diet in Established Diabetes

- Modern Science^[7, 8]
 - Energy balance: Calorie reduction and weight loss can improve glycemia and even induce remission (DiRECT trial).
 - Macronutrient approach: Multiple diets (Mediterranean, low-GI, low-carb, plant-based) improve glycemic control.
 - Fiber: High fiber (≥ 25 –30 g/day) improves HbA1c, satiety, and gut health.
- Ayurveda
 - Diet is the first line of *Madhumeha chikitsa*.
 - *Pathya Ahara*^[6] (wholesome foods):
 - Barley (*Yava*), wheat (*Godhuma*), green gram (*Mudga*), bitter melon (*Karela*), fenugreek (*Methi* seeds).
 - *Takra* (buttermilk) – improves digestion and metabolism.
 - *Amla* (*Emblia officinalis*) – *Rasayana*, antioxidant, supports glucose metabolism.
 - *Apathya Ahara* (to be avoided):
 - Excess sweets, curd at night, newly harvested grains (*Navanna*), alcohol.
 - Concept of *Langhana* (light diet, fasting) and *Upavasa* (therapeutic fasting): recommended in early stages for *Kapha–Medo* dominance^[9].

4. Special Dietary Concepts

Modern Nutrition ^[10, 11]	Ayurvedic Nutrition
Carbohydrate quality matters- low glycaemic index/load improve post-prandial glucose.	Preference for <i>yava</i> (barley), <i>Kulatha</i> (horsegram), <i>Mudga</i> (greengram) for their <i>kaphamedahar</i> properties ^[2] .
Healthy fats- Unsaturated fatty acids >saturated fat	Avoid excess <i>Sneha dravya</i> (oil/fatty foods) that aggravate <i>kapha</i> and <i>meda</i> .
Protein- moderate intake, plant & animal source both	Lean proteins from pulses, buttermilk.
Fiber- from legumes, vegetables, fruits	<i>Tikta shaak</i> (green leafy vegetables), <i>phala</i> (nonsweet fruits)
Sugar-sweetened beverages discouraged	Madhu in small diluted amount suggested as <i>yogvahi</i> but not heated
Time restricted eating, intermittent fasting explored	<i>Langhan</i> , <i>upavasa</i> , and seasonal fasting described for prevention and control.

5. Integration of Ayurveda and Modern Science

- Both recommend minimizing refined sugars, excess fats, and processed foods.
- Both emphasize including whole grains, legumes, vegetables, and lifestyle discipline.
- *Ayurveda* adds unique principles: *Agni* balance, *Rasa* (taste-based diet), *Pathya–Apathya* listing^[12], and *Rasayana*^[11] herbs/foods (*Amla*, *Triphala*, etc.).
- Modern nutrition provides measurable glycemic index, calorie targets, macronutrient ratios, and clinical evidence from trials.

Diet remains the cornerstone of diabetes management across conventional as well as Ayurvedic systems of medicine. Modern medicine focuses on scientifically validated dietary patterns and macronutrient distribution, whereas *Ayurveda* emphasizes individual constitution (*Prakriti*), digestive fire (*Agni*), and *Pathya–Apathya*-based dietetics. An integrated approach—combining modern nutritional science with *Ayurvedic* wisdom of seasonal, constitution-based, and wholesome diet—can provide sustainable glycemic control, improve quality of life, and potentially delay or prevent complications of diabetes.

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Source of support: Nil
Conflict of interest: None Declared

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