



# **Nabhi Marma with Special Reference to Pancreas and Type II Diabetes Mellitus: An Integrative Review**

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## Abstract

Type 2 Diabetes Mellitus (T2DM) is a chronic metabolic disorder characterized by insulin resistance and progressive pancreatic  $\beta$ -cell dysfunction. Ayurveda describes *Nabhi Marma* as a vital anatomical and physiological center governing *Agni* and systemic metabolism. This review aims to explore classical Ayurvedic descriptions of Nabhi Marma and analyze its possible correlation with pancreatic physiology and T2DM from an integrative perspective. Literature from classical Ayurvedic texts and modern biomedical sources was reviewed. Conceptual and physiological correlations were analyzed. The findings suggest that Nabhi Marma, described as the seat of metabolic regulation, may have functional parallels with pancreatic endocrine activity and autonomic regulation. Further clinical and experimental studies are required to validate this hypothesis.

**Keywords:** Nabhi Marma, Pancreas, Type 2 Diabetes Mellitus, Prameha,

## Introduction

Type 2 Diabetes Mellitus (T2DM) is a major global health concern characterized by chronic hyperglycemia due to insulin resistance and relative insulin deficiency (1,2). The disease leads to microvascular and macrovascular complications and significantly affects morbidity and mortality worldwide.

In Ayurveda, *Prameha*, particularly *Madhumeha*, closely resembles Type 2 Diabetes Mellitus in its symptomatology and pathogenesis (3). The root cause is attributed to derangement of *Agni* and imbalance of *Kapha* and *Medo Dhatu*.

Marma is a unique Ayurvedic concept referring to vital anatomical locations formed by the confluence of *Mamsa*, *Sira*, *Snayu*, *Asthi*, and *Sandhi* (4). Among them, **Nabhi Marma**, located in the umbilical region, is considered a central regulator of digestion and metabolism. It is described as the seat of *Agni*, which governs transformation and energy metabolism (4).

Although classical texts do not explicitly describe the pancreas, the functional attributes of *Agni* and metabolic control show conceptual similarity to pancreatic endocrine functions. This review attempts to analyze the correlation between Nabhi Marma and pancreatic involvement in T2DM.

## Aims and Objectives

### Aim

To explore the Ayurvedic concept of Nabhi Marma and its possible correlation with pancreatic physiology and Type 2 Diabetes Mellitus.

### Objectives

1. To review classical Ayurvedic literature regarding Nabhi Marma.
2. To analyze the Ayurvedic understanding of *Prameha* in relation to metabolic dysfunction.
3. To review modern biomedical literature on pancreatic physiology and T2DM.
4. To establish a conceptual and functional correlation between Nabhi Marma and pancreatic endocrine activity.
5. To propose future research directions for integrative clinical validation.

## Materials and Methods

### Study Design

A narrative integrative literature review.

### Data Sources

- Classical Ayurvedic texts: *Charaka Samhita* and *Sushruta Samhita*<sup>(3,4)</sup>.
- Modern medical textbooks and peer-reviewed journal articles on pancreatic physiology and T2DM<sup>(1,5,6)</sup>.
- Articles related to autonomic regulation and gut–brain axis mechanisms<sup>(7,8)</sup>.

### Method of Analysis

- Compilation of classical references regarding Nabhi Marma and *Prameha*.
- Extraction of functional descriptions related to metabolism and digestion.
- Comparative analysis with modern understanding of pancreatic endocrine physiology.
- Development of a conceptual integrative model.

### Discussion

Nabhi Marma is described as a *Sadyah Pranahara Marma* and is considered central to maintenance of life and metabolic balance<sup>(4)</sup>. It is the seat of *Jatharagni*, which governs digestion, assimilation, and transformation.

In Ayurveda, disturbance of *Agni* leads to improper metabolism (*Dhatvagni Mandya*), resulting in accumulation of pathological metabolites and development of *Prameha*<sup>(3)</sup>.

Modern medicine attributes glucose homeostasis primarily to pancreatic insulin secretion and peripheral insulin sensitivity<sup>(5,6)</sup>. Dysfunction of  $\beta$ -cells and insulin resistance form the pathological basis of T2DM.

The abdominal region contains extensive autonomic nerve networks, vascular structures, and fascial planes. Stimulation of this region may influence autonomic balance and visceral organ function. Studies indicate that vagal nerve activity modulates insulin secretion<sup>(7)</sup>. Moreover, the gut–brain–pancreas axis plays a crucial role in metabolic regulation<sup>(8)</sup>.

Thus, the description of Nabhi Marma as a metabolic regulatory center may reflect an early observational understanding of neuro-endocrine control of metabolism.

However, direct clinical evidence linking Nabhi Marma stimulation to improved glycemic control is currently insufficient. Rigorous randomized controlled trials are required.

### Modern Correlation

Ayurvedic Concept	Modern Equivalent
Agni	Metabolic and enzymatic activity
Prameha	Type 2 Diabetes Mellitus
Nabhi Marma	Umbilical neurovascular-autonomic hub
Samana Vayu	Enteric and autonomic nervous regulation

Ayurvedic Concept	Modern Equivalent
Dhatvagni Mandya	Insulin resistance / metabolic dysfunction

Possible mechanisms of correlation include:

1. **Autonomic modulation:** Vagal influence on pancreatic insulin secretion<sup>(7)</sup>.
2. **Gut–brain axis regulation:** Hormonal signaling influencing glucose metabolism<sup>(8)</sup>.
3. **Stress modulation:** Reduction in cortisol-mediated insulin resistance<sup>(9)</sup>.
4. **Improved visceral circulation:** Enhanced pancreatic perfusion (hypothetical).

This correlation remains theoretical and requires experimental validation.

## Conclusion

Nabhi Marma is described in Ayurveda as a vital center governing digestion and metabolism through regulation of *Agni*. Type 2 Diabetes Mellitus, characterized by pancreatic endocrine dysfunction and insulin resistance, shows conceptual parallels with *Prameha* described in classical texts.

Although direct anatomical equivalence between Nabhi Marma and pancreas cannot be established, functional similarities suggest a possible neuro-endocrine correlation. Integrative research combining marma therapy, metabolic biomarkers, and autonomic assessment may help establish scientific evidence.

Further experimental and clinical studies are warranted to validate Nabhi Marma stimulation as a supportive modality in T2DM management.

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