

A RUNDOWN ON NON-PHARMACOLOGICAL MANAGEMENT OF MADHUMEHA

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ABSTRACT

Diabetes Mellitus, a chronic metabolic disorder characterized by hyperglycemia, is associated with long-term microvascular complications such as retinopathy, nephropathy, neuropathy, and macrovascular (cardiovascular) complications. While pharmacological interventions are commonly employed, non-pharmacological management strategies are also essential. Ayurvedic texts describe '*Prameha*', a condition similar to Diabetes Mellitus, and offer detailed guidance on dietary modifications and physical activities for prevention and management. This article aims to highlight various references in Ayurveda texts and research supporting lifestyle modifications. Principles such as *Dinacharya* (daily regimen), *Aahara* (diet), *Vihara* (activities), *Sadvritta* (ethical conduct), and *Rasayana* (rejuvenation therapy) play a significant role in the prevention and effective management of diabetes when incorporated into daily

routines.

KEYWORDS: Diabetes mellitus, *prameha*, *viharas*, lifestyle modification.

INTRODUCTION

Diabetes Mellitus Is a Progressive Chronic Metabolic Disorder Characterized by Hyperglycemia Associated With Long Term Micro Vascular Complication Like Retinopathy, Nephropathy, Neuropathy And Macro Vascular (Cardiovascular) Complications.^[1]

According to WHO India is one of the Nation where most of the people are suffering from lifestyle disorders and diabetes mellitus is one of them. DM refers to group of common metabolic Disorders that share the phenotype of hyperglycemia. Several distinct types of DM are caused by complex interaction of genetics and environmental factors. The factors contributing to hyperglycemia are reduced insulin secretion, decreased glucose utilization, and increased glucose production. Persons with DM are at increased risk of cardio-vascular diseases which is the main cause of morbidity and mortality in population.^[2] Evidence has clearly shown that lifestyle variables are highly associated in determining the relative risk of diabetes mellitus. Lifestyle variables include meal habits, exercise state, drinking state and smoking state. Modification in these factors would result in improved compliance towards hypoglycemic agents.

METERAL AND METHOD

All the references of *apathya ahara vihara* (unwholesome food and Actions) in *prameha* (Diabetes mellitus) are collected from various textbooks, articles and journals and impact of lifestyle modifications on *prameha* (Diabetes mellitus) is studied in detail.

INITIAL THERAPY

Treatment must be individualized on the basis of the type of diabetes mellitus and specific needs of each patient.

1. The obese / type 2 D.M patient

a. Weight reduction

- by means of use of tailored diet
- by means of exercise

b. hypoglycemic agents:

2. The non-obese patient

Treatment mainly depends upon the blood glucose level.

a. Dietary therapy

Diet with caloric content sufficient to maintain ideal weight, restrictions of saturated fat and cholesterol are strongly advised.

b. Oral hypoglycemic agents.

Dietary aims for the control of Diabetes

Carbohydrates - It is thought to be the enemy of diabetes. A well-planned diet comprises 65-70% of total calories from food rich in carbohydrates. They are not available until after they are converted into simple sugar (glucose) and are absorbed into the bloodstream. Some dietary carbohydrates like sugar are already in this form. But complex carbohydrates must be broken down into simple sugar before being available for the body to use. Carbohydrates should be complex in nature & whole grains with high fiber content. This will help in lowering blood sugar, weight reduction, lowering blood cholesterol triglycerides, and help in digestive disorders. Whole pulses and grains have a large amount of dietary fiber and a very high proportion of complex carbohydrates, leading to a low glycemic index.

Dietary fibers - An average Indian diet contains about 25-35gms of crude fiber. Excellent sources of fiber like whole grains, cereals, fresh fruits, dried fruits & vegetables contribute to the dietary fiber intake if eaten regularly.

Foods rich in fiber are:

Millet preparations, either as cooked cereals or homemade snacks

Sprouts from pulses, gram, or beans

Vegetables like cluster beans, curry leaves, drumsticks, or lotus stem

Guava and pomegranate are among the fruits with the highest fiber content

Certain items commonly used for garnishing enrich food preparations with fiber, examples green chilies, cardamom seeds, coriander.

Way to add fiber

Use whole wheat grain in the ratio of 2:1 for chapati instead of plain wheat chapati.

Mix equal portions of rice & whole pulses for idli, dosa & kichadi.

Select whole-wheat bread or soya bread instead of white bread.

Drink 6-8 glasses of fluid daily to help your body use fiber effectively.

Include more uncooked vegetables & sprouted beans for your salad.

IDDM patients should be advised to consume frequent small meals, i.e., they need to plan mid-morning, mid-afternoon & bedtime snacks besides breakfast, lunch & dinner. This meal plan must also take into consideration the medication being advised.

A diabetic who is a vegetarian & consumes wholesome and coarse food with natural fiber, mixed proteins, and restricted fat of unsaturated nature will lead a healthy life.

In general any dietary and behavioral factors that reduces *kapha* and *meda* is considered as the *pathya* in *prameh* and contrary to this the dietary and behavioral factors which increases *kapha* and *medas* in the body are the *apathya* in *prameha* and the same are listed in the table:

Table 1: Showing Pathya and Apathya of Prameha Vyadhi. ^[3,4,5]

Sl.no	Ahara Varga	Pathya Ahara Dravyas	Apathya Ahara Dravyas
1	Shooka dhanya	<i>Kalmashali</i> (paddy, rice-oryza sativa) <i>Yava</i> (barly-hordeum vulgere) <i>Nivara</i> – verity of millet grain) <i>Godhuma</i> (wheat-tricum sativm) <i>Purana kuruvinda</i> – variety of paddy.	<i>Nava anna sevana</i> (freshly harvested grains)
2	Shami dhanya	<i>Mudga</i> (green gram-phaseolous aureus) <i>Chanaka</i> (Bengal gram-cicer arietinum) <i>Kullatha</i> (horse gram-dolichos biflorus) <i>Tila</i> (sesame-sesamum indicum)	<i>Nishpava</i> (intake of kidney beans)
3	Mamsa varga	<i>Jangala mamsa</i> (meat of animal and birds of dry and lands) <i>Tittira mamsa</i> (meat of grey partridge) <i>Kapotha mamsa</i> (meat of pigeon) <i>Shashaka mamsa</i> (meat of rabbit) <i>Ena mamsa</i> (meat of deer) <i>Lava mamsa</i> (meat of bustard quail)	<i>Anupa mamsa sevana</i> (intake of meat of animal of marshy lands) <i>Audaka mamsa</i> (intake of soup prepared from the aquatic animals) <i>Gramya mamsa</i> (intake of soups prepared from the domestic animals)
4	Gorasa varga	<i>Takra</i> (butter milk)	<i>Dadhi sevana</i> (intake of curds) <i>Ghrita sevana</i> (intake of ghee)
5	Phaala varga	<i>Amalaka</i> (Indian goose berry-embalica officinalis) <i>Vibhitaki</i> (belleric myrobalan-terminalia bellerica) <i>Haritaki</i> (chebulic myrobalan - terminalia chebula) <i>Kapithha</i> (wood apple -limonia acidissima) <i>Jambu</i> (blue berry – syzygium cumini) <i>Kalinga</i> (watermelon-citrullus lanatus) <i>Karjura</i> (dates -phoenix dactylifera) <i>Tinduka phala</i> (Indian persimmon-diospyras tomentosa)	<i>Taala asthi majja</i> (taking palm fruit-borassus flabelifer) <i>Kushmanda phala</i> (taking ash gourd)
6	Madhya varga	<i>Purana sura</i> (old alcoholic beverages) <i>Madhvika</i> (wine prepared out of honey) <i>Patha Abhaya chitraka asava madhu sahita</i> (fermented infusion prepared out	<i>Sura</i> , <i>asava</i> (alcoholic beverages)

		of patha, Abhaya, chitraka)	
7	Krittana varga	Vatya manda (gruel prepared with broken barley) Lajja (parched rice) Hingu saindava sarshapa yukta yusha (soup prepared out of asafetida mustered and rock salt) Shuska saktu (parched grain flour)	Pishtanna sevana (intake of items made out of floors)

The *Pathya Viharas* for *Pramehi rugna* as mentioned by *Acharya Charaka* can be adopted as a preventive measure of *Prameha* due to their impact specifically on muscles by the way of utilizing sugar. Some of the other regimen such as longhaa, rukshana helps in pacifying Kapha and Medo dhatu. • Apatarpana with the help of Vihara in the treatment of *Prameha* is mentioned by all Acharyas.

Some of the activities mentioned are very similar to aerobic exercises. They include the following:^[6]

1. *Langhana*
2. *Niyuddha* (wrestling)
3. *Kreeda* (different types of sports)
4. *Hasti aashwa vahanam ati bhramanam* (riding on the elephants, horses)
5. *Ratha charya* (riding on the chariots)
6. *Padaticharya* (do the work of foot soldiers)
7. *Parikramana* (brisk walking)
8. *Astropastrabhyasa* (practice of the weapons)
9. *Arige sah vaseta* (moving along with animals)
10. *Satatam Krishi* (ploughing fields)
11. *Shiloanchavritti* (adopting profession of sculptor)
12. *Bramha ratha uddarana on shila* (craving a brmha ratha on shila)
13. *Koopa khanana* (digging well)
14. *Ravitvitt* (exposure to sunlight)
15. *Ratrijagarana* (keeping awake at night)-causes roughness in the body; sleep during day time causes unctuousness and dozing in sitting posture does neither cause roughness nor unctuousness.^[7]
16. *Rooksha Dravya -chikitsa* -the therapy which induces dryness, roughness, and non-sliminess is termed rukshana and is mainly indicated in santarpanotta vikara. Rukshana

chikitsa in prameha rogi is done by taking honey with water or *triphala* Kashaya and by consuming various preparation of yava.

17. *Snana jalavasekaih* (taking bath/jalavaseka)- This is done by kashayas of various herbs which help to eliminate the waste products by absorption from skin and are also effective in excessive sweating and bad odor of body. The procedure will also help to regaining strength.

18. *Udwartana* -external application of the *aushadha Dravya* is known as *bahirparimarjana chikitsa*. In *premeha udwrtana* (powder massage) with *pramehahara* drugs has been advised. It will helps to decreases the body weight, mobilze the adipose tissue and to get symptomatic relief. Application of pastes of tvak, ela, ushira, Chandana and agaru are also advised.

19. *Vyayama* (Exercise) – Any karma or action of the body that produces *shareera ayasa* (Fatigue of the body) is considered as *vyayama*. *Vyayama* is *alasyahara* (Overcomes laziness), *sthoulya apakarshaka* (Reduces obesity) and induces *sthiratva* (Stability), *laghuta* (Lightness) and *agnideepthi* (kindling of digestive fire). The person develops tolerance to *klama* (tiredness), *pipasa* (thirst), *ushna* (heat), *sheet*(cold), *klesha* (distress). *Vyayama* should be performed to a man's *ardhashakti*(half strength).^[8] otherwise, it can be harmful. *vyayama* thus is ideal in *premeha* especially in *sthoola*(obesity) and *balavan*(strong).

20. Aerobic activities such as *Niyuddha* (wrestling), *Kreedha* (different types of outdoor sports), *Parikramana* (brisk walking), *Astropastrabhyasa* (practice of weapons), and *Koopa khanana* (digging well). On the other hand, anaerobic activities involve *Hasti aashwa vahanam ati bhramanam* (riding on elephants, horses), *Ratha charya* (riding on chariots), *Padaticharya* (movement similar to foot soldiers), *Arige sah vaseta* (moving along with animals), *Satatam Krishi* (ploughing fields), *Shiloanchavritti* (adopting the profession of a sculptor), and *Bramha ratha uddarana on shila* (carving a Bramha ratha on a stone) offer different physical benefits.

Table 2: Showing Vihar Hetu of Prameha Vyadhi and Counter Measures.

All these maneuvers help to reduce Meda and Kapha which are the main culprits in *Prameha*.

S.no	Nidhana	Dosha and Dhathu	Vihara
1.	<i>Aasyasukha</i> (sitting in a comfortable position on chair with back support or movable chair)	Aggravating <i>kapha dosha</i>	<i>Vyayama</i> (physical exercise)
2.	<i>Diwa swapana</i> (sleeping in day time)	Aggravating <i>kapha dosha</i>	Adequate sleep for 6 to 8 hours at night.
3.	<i>Nidra atisukham</i> (excessive sleeping)	Aggravating	Avoid <i>diwaswapna</i> ,

		<i>kapha dosha</i>	Reduce the screen time.
4.	<i>Tyakta chinta</i> (no tension)	Aggravating <i>kapha</i> and <i>medas</i>	Mental activity
5.	<i>Tyakta vyayama</i> (avoidance of physical exercise)	Aggravating <i>kapha</i> and <i>medas</i>	<i>Vyayama, yoga asanas</i>
6.	<i>Alasya prasakta</i> (lassitude)	Aggravating <i>kapha</i>	Aerobics, dancing, singing.
7.	Failure to perform <i>samshodhana</i> therapy	Aggravating of <i>vata, pitta & kapha</i>	Repeated proper <i>shodhana</i> .

Table 04: Calories Burned With Common Exercises.^[9]

The table shows calories burned during certain activities based on either activity duration or distance.

SL NO	ACTIVITY	CAL/HR
1.	Light house work	120-150
2.	Walking (3mph)	240-300
3.	Cycling (6mph)	240-300
4.	Cycling (8mph)	300-360
5.	Aerobics	300-360
6.	Walking (4mph)	320-420
7.	Walking (5mph)	420-480
8.	Jogging (5mph)	480-600
9.	Swimming moderate	300-350
10	Hiking	250-300
11	Stair step machine	300-350
12	Stretching, <i>hatha yoga</i>	300-350
13	Weight lifting	300-350
14	Aerobics-step	450-500

Stress induced diabetes mellitus

In anxiety and stress prone individuals the *samprapti* starts from the vitiation of *vata* leading to agni dusti, *amotpatti* and the ama along with *kapha* and *medo dhatu* settles in *basti* leads to *prameha*. On the other hand anxiety is due to *tamoguna* impairment which in turn lead to lack of motivation and physical activity and causes impairment of *kapha* and *meda dhatu* which will leads to *prameha*. The effect of stress can lead to increased production of pituitary hormones, catecholamines, corticosteroids and suppression of insulin release. These hormonal variations serve to increase glucose levels in the blood associated with poor glycemic control in diabetic persons.^[10,11] Anxiety and stress induced hyperglycemic state can be controlled by

- *Asanas* - Yoga postures such as *Vajrasana*, *Mandukasana*, *Pacchimotasana*, *Ardha Matsyendrasana*, *supta vajrasana*, *sethu bandhasana* to *viprit karni* (bridge and leg up the

wall pose), *sarvangaasana*, *purna shalabhasana*, *triyaka bhujangasana*, *dhanurasana*, *udharmukha swan asana* and *Halasana* have shown effectiveness in lowering blood glucose levels in individuals with Type 2 Diabetes Mellitus (T2DM). This beneficial impact of yoga on T2DM is attributed to its ability to enhance insulin sensitivity in target tissues, thus reducing insulin resistance and promoting the peripheral utilization of glucose. Additionally, it has been suggested that yoga may contribute to the rejuvenation or regeneration of beta cells in the pancreas. Furthermore, yoga exerts positive effects on overall well-being and helps manage stress.

♣ *Pranayamas* like: - *Kapalbhati*, *Bhramari*, *Bhastrika*.

♣ Meditation also plays an important role as it helps in reducing stress which in turn lowers the blood sugar level.

♣ *Suryanamaskar* should be performed daily as it increases the blood supply to various body parts and in turn helps to burn the excessive fat.

♣ Various lifestyle modifications like getting up early in the morning (*Brahma muhurta*), brisk walk (*chankramana*), adequate sleep for 7 to 8 hours.

NOTE: The diet, exercise, and yoga routines should be planned by a physician and dietitian after a complete examination of the patient, considering the chronicity of the disease.

DISCUSSION

Diabetes mellitus, a prevalent non-communicable disease globally, results from various factors including genetics, environment, and lifestyle choices. Ayurveda emphasizes diet, lifestyle, and yoga for preventing and managing such disorders. Studies support Ayurvedic interventions in addressing these conditions, with diet and lifestyle adjustments playing key roles. Understanding Ayurvedic principles guides preventive measures through lifestyle modifications. Integrating yoga into daily routines aids in managing diabetes mellitus effectively. This holistic approach offers a comprehensive strategy for disease prevention and management, highlighting the importance of dietary adjustments, lifestyle modifications, and yoga practices.

CONCLUSION

Diabetes Mellitus, a worldwide health issue, demands a multifaceted approach encompassing both pharmaceutical and non-pharmaceutical interventions. Ayurveda, emphasizing Pathya (appropriate diet), lifestyle adjustments, and yoga, presents a potential avenue for

management. The prevalence of lifestyle disorders, such as diabetes, is escalating, notably in nations like India. Recognizing the interplay of genetics, environment, and lifestyle is paramount. Embracing healthy practices like balanced nutrition and regular physical activity mitigates risk factors. Ayurvedic strategies contribute to enhanced well-being and outcomes.

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