

DIABETES MELLITUS



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INTRODUCTION

Diabetes is a debilitating disease that has now reached epidemic proportions .Globally, an estimated 422 million adults are living with diabetes mellitus. Diabetes mellitus occurs throughout the world, but is more common (especially type 2) in the more developed countries. The increase in incidence in developing countries follows the trend of urbanization and lifestyle changes, sedentary lifestyles, less physically demanding work and increased intake of foods that are high energy-dense but nutrient-poor (often high in sugar and saturated fats). The risk of getting type 2 diabetes has been widely found to be associated with lower socio-economic position across countries. Today India is turning to be the Diabetes capital of world with as many as 65 million people with type 2 Diabetes mellitus. Getting a chronic disease threatens the individual's self-sufficiency and disturbs his family life and future perspectives. Therefore, facing the diseases, most people have neither any control over their lives nor over their bodies, a feeling that counts as a plunge and changes an individual's outlook toward life. So prevention of diabetes means changing a culture where inactivity, obesity and poor eating habits run rampant.

Diabetes self-care management is necessary in order to maintain blood sugars and prevent complications. This makes diabetes management a priority in the health care system, while it also impacts the quality of life of those affected. Different methods to control diabetes have been explained in a very simple way in this e-book. For those who are diabetic and searching for an alternative and safe treatment methods, this e-book will be useful for its compiled from various sources and re written to present in a form that it makes easy to read and understand.

DIABETES MELLITUS

Diabetes mellitus usually refers to Diabetes, is first identified as disease associated with 'sweet urine' (Madhu meha) and excessive muscle loss (dhathu /ojo kshaya) in Ayurveda. Its known from the vedic periods as Prameha. It affects every part of human body. Ancient Indian physicians described not only the sweetness of urine as the symptom but also the relationship of disease with the entire systems of human body. All classical texts had described Prameha.

History of Diabetes can trace back as early as 1550 BC in Egypt with name as 'DIABETES' as a flow through disease, characterized by excessive urination. Modern era with its all facilities has done studies on diabetes and has given a proper definition for it.

According to WHO,

'Diabetes mellitus is a chronic disease caused by inherited and/or acquired deficiency in production of insulin by the pancreas, or by the ineffectiveness of the insulin produced. Such a deficiency results in increased concentrations of glucose in the blood, which in turn damage many of the body's systems, in particular the blood vessels and nerves.'

There are two principle forms of diabetes:

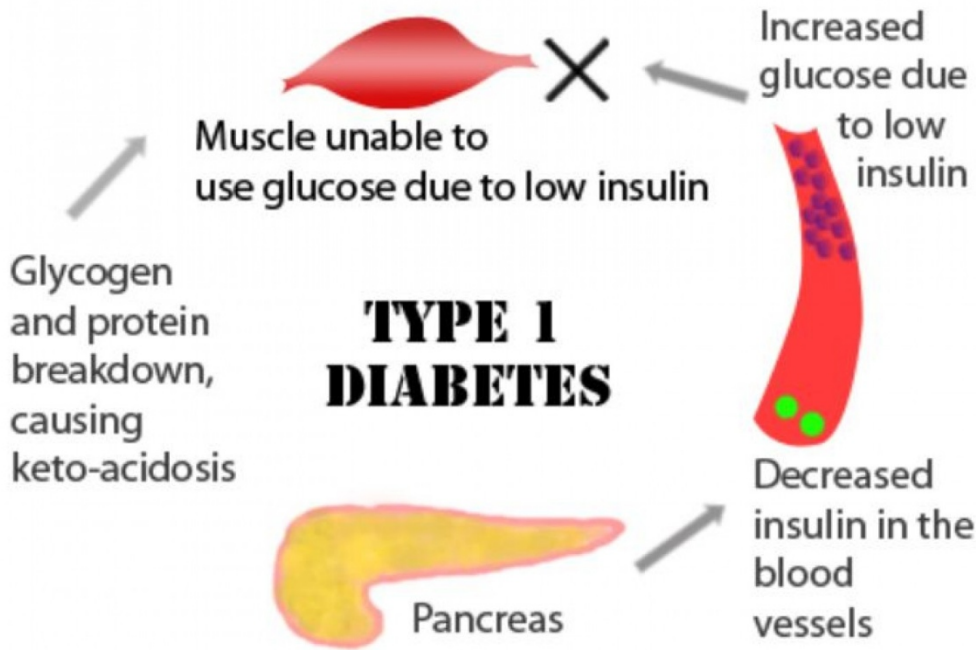
Type 1 diabetes (formerly known as insulin-dependent) in which the pancreas fails to produce the insulin which is essential for survival. This form develops most frequently in children and adolescents, but is being increasingly noted later in life.

Type 2 diabetes (formerly named non-insulin-dependent) which results from the body's inability to respond properly to the action of insulin produced by the pancreas. Type 2 diabetes is much more common and accounts for around 90% of all diabetes cases worldwide. It occurs most frequently in adults, but is being noted increasingly in adolescents as well.

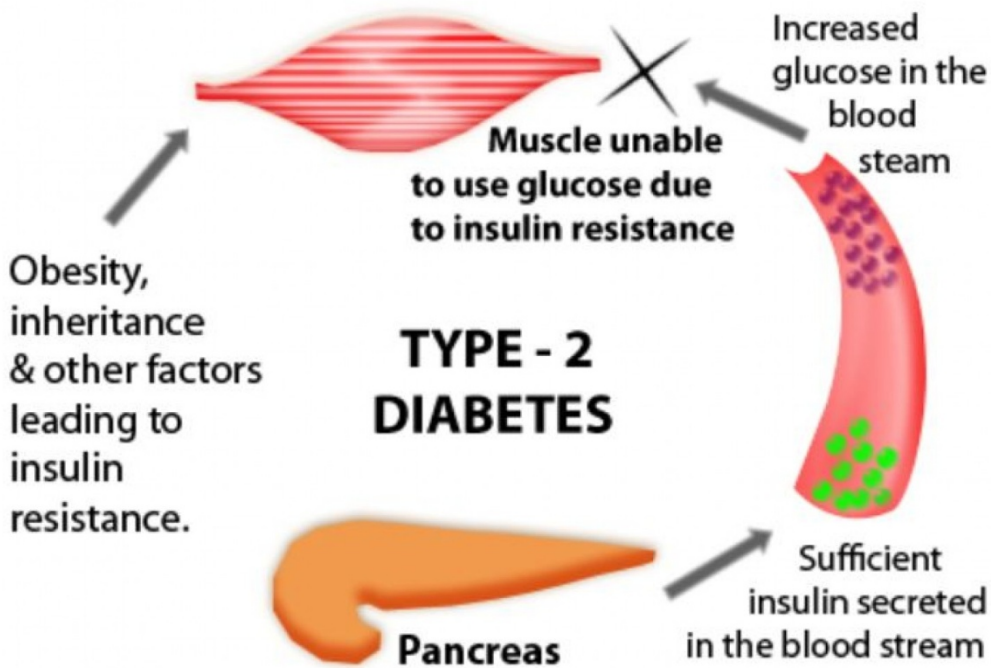
Other type includes gestational diabetes, Secondary diabetes, Juvenile diabetes etc.

The mechanism of diabetes is fairly well understood. The blood delivers glucose to provide the body with energy to perform all of a person's daily activities. The liver converts the food a person eats into glucose. The glucose is then released into the bloodstream. In a healthy person, the blood glucose level is regulated by several hormones, primarily insulin. Insulin is produced by the pancreas, a small organ between the stomach and liver. The pancreas also makes other important enzymes released directly into the gut that helps digest food. Insulin allows glucose to move out of the blood into cells throughout the body where it is used for fuel. People suffered diabetes either do not produce enough insulin (type 1 diabetes) or cannot use insulin properly (type 2 diabetes), or both (which occurs with several forms of diabetes). In diabetes, glucose in the blood cannot move efficiently into cells, so blood glucose levels remain high. This not only starves all the cells that need the glucose for fuel, but also harms certain organs and tissues exposed to the high glucose levels.

Type 1 Diabetes



Type 2 Diabetes



RISK FACTORS FOR DIABETES:

The causes of diabetes vary depending on the individual and the type. Family history is a known risk factor for type 1 diabetes. Other risk factors can include having certain infections or diseases of the pancreas.

Risk factors for type 2 diabetes and prediabetes are many. The following can raise your risk of developing type 2 diabetes:

- Being obese or overweight
- High blood pressure
- Elevated levels of triglycerides and low levels of "good" cholesterol (HDL)
- Sedentary lifestyle
- Family history
- Increasing age
- Polycystic ovary syndrome
- Impaired glucose tolerance
- Insulin resistance
- Gestational diabetes during a pregnancy
- Ethnic background

Early signs and symptoms of diabetes.

1. The early symptoms of untreated diabetes are related to elevated blood sugar levels, and loss of glucose in the urine. High amounts of glucose in the urine can cause increased urine output (frequent urination, polyuria) and lead to dehydration.
2. The dehydration also causes increased thirst and water consumption (polydypsia).
3. A relative or absolute insulin deficiency eventually leads to weight loss.
4. The weight loss of diabetes occurs despite an increase in appetite.
5. Some untreated diabetes patients also complain of fatigue.
6. Nausea and vomiting can also occur in patients with untreated diabetes.
7. Frequent infections (such as infections of the bladder, skin, and vaginal areas) are more likely to occur in people with untreated or poorly-controlled diabetes.
8. Fluctuations in blood glucose levels can lead to blurred vision.

Extremely elevated glucose levels can lead to lethargy and coma.

Complications of Diabetes

Acute complications of type 1 diabetes

Includes excessive glucose in urine, excessive loss of fluid and electrolytes in the urine. Excessive break down of fat and protein stores causing Diabetic ketoacidosis. Symptoms of diabetic ketoacidosis include nausea, vomiting, and abdominal pain. This condition needs prompt medical care.

Acute complications of type 2 diabetes

Severe blood sugar elevation in patients with type 2 diabetes can lead to an increase in blood osmolality (hyperosmolar state). This condition can worsen and lead to coma (hyperosmolar coma). Like diabetic ketoacidosis, a hyperosmolar coma is a medical emergency.

Too much of insulin causes Hypoglycemia means abnormally low blood glucose level. Blood glucose is essential for the proper functioning of brain cells. Therefore, Hypoglycemia leads to central nervous system symptoms such as dizziness, confusion, weakness and tremors.

Chronic complications of diabetes

These diabetes complications are related to blood vessel diseases and are generally classified into small vessel disease, such as those involving the eyes, kidneys and nerves (microvascular disease), and large vessel disease involving the heart and blood vessels (macrovascular disease). Diabetes accelerates hardening of the arteries (atherosclerosis) of the larger blood vessels, leading to coronary heart disease (Heart attack), strokes, and pain in the lower extremities because of lack of blood supply (claudication, shoola).

Eye Complications

The major eye complication of diabetes is called diabetic retinopathy. Diabetic retinopathy occurs in patients who have had diabetes for at least five years. Diseased small blood vessels in the back of the eye cause the leakage of protein and blood in the retina. Spontaneous

bleeding from the new and brittle blood vessels can lead to retinal scarring and retinal detachment, thus impairing vision. Cataracts and glaucoma are also more common among diabetics

Kidney damage

Kidney damage from diabetes is called diabetic nephropathy. Initially, diseased small blood vessels in the kidneys cause the leakage of protein in the urine. Later on, the kidneys lose their ability to cleanse and filter blood. The accumulation of toxic waste products in the blood leads to the need for dialysis. In patients who do not want to undergo chronic dialysis, kidney transplantation can be considered.

Nerve damage

Nerve damage from diabetes is called diabetic neuropathy and is also caused by disease of small blood vessels. In essence, the blood flow to the nerves is limited, leaving the nerves without blood flow, and they get damaged or die as a result. Symptoms of diabetic nerve damage include numbness, burning, and aching of the feet and lower extremities. When the nerve disease causes a complete loss of sensation in the feet, patients may not be aware of injuries to the feet, and fail to properly protect them. Shoes or other protection should be worn as much as possible. Seemingly minor skin injuries should be attended to promptly to avoid serious infections. Because of poor blood circulation, diabetic foot injuries may not heal. Sometimes, minor foot injuries can lead to serious infection, ulcers, and even gangrene, necessitating surgical amputation of toes, feet, and other infected parts.

Diabetic nerve damage can affect the nerves that are important for penile erection, causing erectile dysfunction (ED, impotence).

Major Complications of Diabetes

Microvascular

Eye

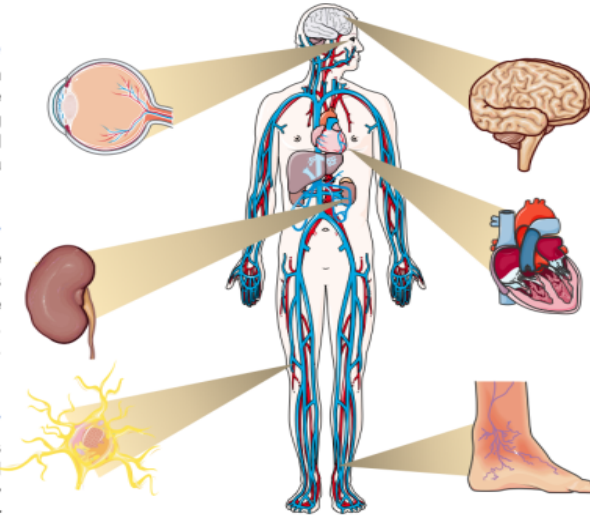
High blood glucose and high blood pressure can damage eye blood vessels, causing retinopathy, cataracts and glaucoma

Kidney

High blood pressure damages small blood vessels and excess blood glucose overworks the kidneys, resulting in nephropathy.

Neuropathy

Hyperglycemia damages nerves in the peripheral nervous system. This may result in pain and/or numbness. Feet wounds may go undetected, get infected and lead to gangrene.



Macrovascular

Brain

Increased risk of stroke and cerebrovascular disease, including transient ischemic attack, cognitive impairment, etc.

Heart

High blood pressure and insulin resistance increase risk of coronary heart disease

Extremities

Peripheral vascular disease results from narrowing of blood vessels increasing the risk for reduced or lack of blood flow in legs. Feet wounds are likely to heal slowly contributing to gangrene and other complications.

How do I Know I Have Diabetes

Many people are unaware that they have diabetes, especially in its early stages when symptoms may not be present. There is no definite way to know if you have diabetes without undergoing blood tests to determine your blood glucose levels. See your doctor if you have symptoms of diabetes or if you are concerned about your diabetes risk.

How it is diagnosed

- The fasting blood glucose (sugar) test is the preferred way to diagnose diabetes. After the person has fasted overnight (at least 8 hours), a single sample of blood is drawn and sent to the laboratory for analysis. Fasting plasma glucose levels of more than 126 mg/dl on two or more tests on different days indicate diabetes.
- A random blood glucose test can also be used to diagnose diabetes. A blood glucose level of 200 mg/dl or higher indicates diabetes.

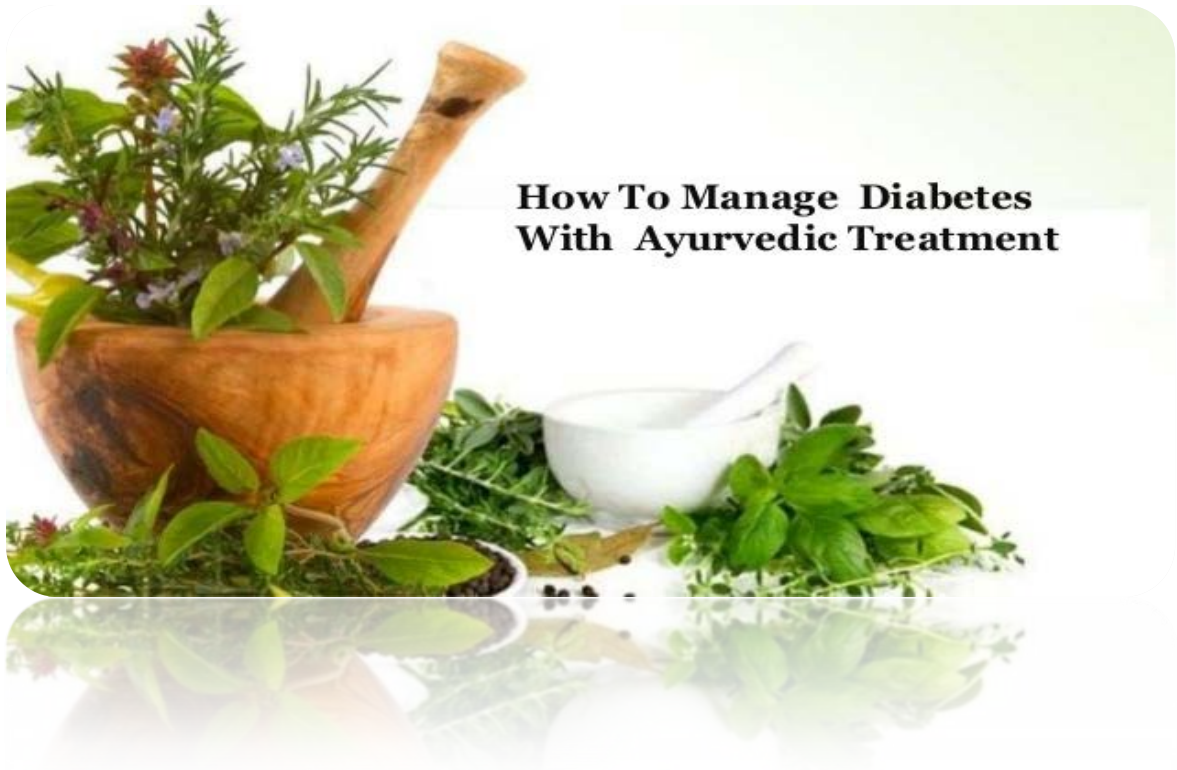
The oral Glucose tolerance test

Though not routinely used any longer, it is still commonly used for diagnosing gestational diabetes and in conditions of pre-diabetes, such as polycystic ovary syndrome

- Normal response: when the 2-hour glucose level is less than 140 mg/dl, and all values between 0 and 2 hours are less than 200 mg/dl..
- Gestational diabetes: a fasting plasma glucose of 92 mg/dl or more; a 1-hour glucose level of 180 mg/dl or more; or a 2-hour glucose level of 153 mg/dl; or more.(any of one result is considered)

Haemoglobin A1c

Measurement of HBA1c gives us an idea of how much sugar is present in the bloodstream for the preceding three months. In most labs, the normal range is 4%-5.9 %. In poorly controlled diabetes, its 8.0% or above, and in well controlled patients it's less than 7.0% (optimal is <6.5%).



How To Manage Diabetes With Ayurvedic Treatment

In Ayurveda, Madhu meha (Diabetes mellitus) is managed by medicines, Panchakarma, diet, Yoga and physical exercise. If it is raised due to secondary cause, with the cure of illness or with the withdrawal of medicines; it will subside. We do the management of diabetes by considering the physical constitution (Prakruthi), health and the Diabetes status of the patient. According to the patient's Prakruthi and Dosha association in diabetes, we prescribe specific Diabetic diet and Panchakarma treatments. We follow authentic Classic treatment procedures under the guidance of specialized professionals. You can consult our Diabetic consultant for detailed prakruthi analysis and treatment guidance.

Ayurveda has 2 ways of approach to manage diabetes:

- Apatharpana(De –nourishment therapy)
- Santharpana (Nourishment therapy)

NOTE: The treatment is advised after a detailed consultation with the Doctor keeping in view the patient's medical history, diet and lifestyle.

I. **De-nourishment (Apatharpana)**: This treatment is advised to an obese patient. It aims at de-nourishments of fats and elimination of toxins. This includes various treatments like

- Cleansing therapies (Shodhana Procedure)- Panchakarma like Snehana (oleation), Vamana (emesis), Virechana (purgation) vasti done according the Kapha, Pitta, vata association in the disease. This type of treatments is only administered to patient with good stamina (Bala). Patients having comparatively less stamina (Bala) are advised with Oral medications and other mild external therapies.
- Oral medications are found very effective in controlling Diabetes. You can get the prescription for oral medication in an outpatient consultation.
- Patients with Diabetic Complications are administered with specific treatments such as Dhanyamla dhara, Oil massages and foot massages for Diabetic Neuropathy, Netra kriya kalpas like netra dhara, netra pichu and Thalapothichil, Takradhara etc for Diabetic Retinopathy. Medicated decoction Dharas are done over diabetic ulcers for better blood circulations and healing.
- Exercises and yoga - That helps to burn out fat and improves hormone balance
- Panchakarmas like Vamana, Virechana, Basti helps to remove the fat toxins from the body. It helps to keep the fat metabolism normal. Certain massage like udwarthana (powder massage) helps to mobilize fat cells and reduces cellulites. It helps to give firmness and shape to the body.
- Chance of getting diabetes when you are obese is high. So efforts are taken to reduce body weight. The proper channelization of diet and life styles helps to prevent diabetes onset.

II. **Nourishment therapy (Santharpana)** is advised to patients who are chronically ill, low immunity, underweight due to draining of essential nutrients. This therapy helps in providing easily acceptable nutrients to rebuilt body tissue and helps increasing defense mechanisms without increasing blood sugar and fat tissue.

NOTE: Along with the suitable treatment advised, the Doctor plans a diabetic diet for the patient depending on his/her body constitution and Diabetes status.

Some Home Remedies to Control Diabetes

- **Cinnamon water:** Cinnamon is an effective way of treating diabetes at home. Drinking Cinnamon with warm water on an empty stomach helps increase metabolism.
 - **Drumstick leaves:** The content in these leaves increases satiety and slows down the breakdown of food.
 - **Almonds:** Eating soaked almonds every day in the morning also keeps diabetes in check.
 - **Methi:** Overnight soaked methi seeds are also considered an effective remedy.
 - **Tomato juice:** Tomato juice with salt and pepper on an empty stomach every morning also helps in controlling diabetes.
 - **Turmeric and Amla juice:-** Taking 1 tsp of turmeric and amla juice in early morning helps to control diabetes.
 - **Bitter ground juice:** very effective in diabetes.
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DO'S AND DON'TS IN DIABETIC MANAGEMENT



- Choose whole grains and whole grain products over highly processed carbohydrates.
- Skip the sugary drinks, and choose water, coffee, or tea instead (with no sugar).
- Choose good fats instead of bad fats.
- Limit red meat and avoid processed meat; choose nuts, whole grains, poultry, or fish instead.
- Eat dry fruits, but in very less quantity.
- Work out every day. Practice Yoga and Meditation to reduce stress.
- Quit smoking.
- Reduce alcohol consumption.
- Consult your doctor to know your ideal weight and work towards achieving it.
- Consult concern specialist if you have diabetic complications.

Self assessment for a diabetic test

1. Do you have excessive thirst, pass a lot of urine, are you always hungry?
2. Are you losing weight although you eat well?
3. Do you feel that you have fatigue for no apparent reason?
4. Are you tired all the time?
5. Do you feel any tingling or numbness in the hands and feet?
6. Do your feet feel hot or "burn" especially at night?
7. Are you very prone to infections?
8. Does any injury, or wound, take a long time to heal?
9. Do you often have to check your vision?
10. Do you have high blood pressure?
11. Have you been told that you have high blood "fats"?
12. Do you have any heart trouble especially at a young age?
13. Did you get cataracts at an early age?
14. Do you have any sexual problems such as impotency?
15. Are you overweight?

If the answer to any of these questions is a yes, a test to rule out diabetes must be done. In fact quite a few people may not have any signs or symptoms and yet have diabetes. Therefore, it is generally felt that **ALL PERSONS OVER THE AGE OF 30 YEARS SHOULD UNDERGO AN ANNUAL TEST FOR THE PRESENCE OF DIABETES**

To conclude, Diabetes is incurable. However, its severity can be toned down. Switch to a better lifestyle. Eat right and work out to keep your mind and body in balance. Too much fatty food will make you more insulin resistant, making you eat more. Therefore, following a diet that is apt for people suffering from diabetes and will help in controlled weight loss. If you are planning for a diabetic control and healthy life style do not hesitate to consult our doctors in Shathayu Ayurveda Hospital. You can experience wellness and long life through Ayurveda.

From Shathayu you will be provided

- Excellent consultation and proper guidance in diabetes management.
- Clarification of all your queries regarding health
- Authentic Panchakarma treatments.
- Diet management
- Excellent nursing and supporting staffs.
- A happy and peaceful treatment period.
