

Diabetes Diabetes Diabetes

What is diabetes?

About fifteen percent population of every country, rich or poor, is struggling to cope with Diabetes. It has a long history. Diabetes was known even 3,500 years ago. About 2,000 years ago, it's said that Arataeus of Cappadocia described diabetes as 'a melting down of the flesh and limbs into urine'. This shows the clear understanding of the diabetic symptoms even in the ancient days. The full name 'diabetes mellitus' derives from the Greek word 'diabetes' meaning siphon - to pass through, and 'mellitus,' the Latin for honeyed or sweet. It refers to a major symptom of diabetes - sugar in the urine.

Diabetes mellitus is a chronic disease caused by the inability of the pancreas to produce insulin or to use the insulin produced in the proper way. Diabetes is the 7th leading cause of death among Americans; over 15 million Americans suffer from one form or another of this disease. Diabetes is common, and more than 2 million people in the UK are known to have the condition (statistics supplied by Diabetes UK). However, up to 750,000 people are believed to have diabetes without realising it. The percentage of people suffering from diabetes is increasing rapidly, to the point where many medical authorities are referring to it as an epidemic.

How it happens?

Diabetes arises because the body can't use glucose properly, either because of a lack of the hormone insulin or because the insulin available doesn't work effectively. Not only is excess sugar found in the blood but it may appear in the urine too.

In the body, glucose is converted into energy. This glucose comes ready-made in sweet foods such as sweets and cakes, or from starchy foods such as potatoes, pasta or bread when they're digested. The liver is also able to manufacture glucose. Under normal circumstances the hormone insulin, which is made by the pancreas, carefully regulates how much glucose is in the blood. Insulin stimulates cells to absorb enough glucose from the blood for the energy, or fuel, that they need. Insulin also stimulates the liver to absorb and store any glucose that's left over.

After a meal the amount of glucose in the blood rises, and this triggers the release of insulin. When blood glucose levels fall, during exercise for example, insulin levels fall too. A second hormone manufactured by the pancreas is called glucagons. It stimulates the liver to release glucose when it's needed, and this raises the level of glucose in the blood. Insulin is manufactured and stored in the pancreas, which is a thin gland about 15cm (6in) long that lies crosswise behind the stomach. It's often described as being two glands in one, since in addition to making insulin it also produces enzymes that are vital for digestion of food. These include lipase, which helps to digest fat, and amylase that helps to digest starchy foods. It also releases 'bicarbonate of soda' to neutralise any stomach acid that may otherwise damage the lining of the gut.

Types of diabetes:

There are three types of Diabetes:

- a) Type 1**
- b) Type 2**
- c) Gestational**

a) Type 1 Diabetes, also known as Juvenile Diabetes because it is usually found in young children and teenagers, but can also occur later in life. In Type 1 Diabetes, the body is not producing insulin, a hormone needed to convert blood sugar into energy. Normally this hormone is produced by cells in our pancreas, but for some reason this is not happening as it should have in the normal course. As the glucose in the blood can't be converted into energy and absorbed by our cells, high blood sugar levels build.

b) Type 2 diabetes : More than three-quarters of those with diabetes have what is called type 2 diabetes mellitus'. This used to be known as non-insulin dependent diabetes mellitus (NIDDM) or maturity-onset diabetes mellitus. The remainder have type 1 diabetes mellitus, which used to be known as insulin-dependent diabetes mellitus.

It is the most common form of diabetes. Type 2 diabetes usually appears later in life, often between the ages of 35-45 years. As it often develops slowly, many people may not recognise the symptoms, and may have diabetes without knowing it.

As explained above in Type 1, the problem is related to insulin, a hormone needed to convert sugar into energy. With Type 2 diabetes our body might be producing too little insulin, or it might not be reacting to the insulin correctly. Either way, the end result is that glucose builds up in the bloodstream instead of going into the cells

c) Gestational diabetes is a type of diabetes, that is only suffered by pregnant women. In Gestational diabetes, a woman's blood sugar is higher than normal because of the other hormones produced during pregnancy, interfere with the insulin that is produced naturally.

Gestational diabetes usually becomes apparent during the 24th to 28th weeks of pregnancy, and, in most cases, disappears of its own accord once the baby is born. Women with gestational diabetes usually do not have an increased risk of having a baby with birth defects. Generally, sufferers of gestational diabetes have normal blood sugar levels during the critical first stages of the pregnancy. Though there can be complications caused by gestational diabetes, these can usually be managed by careful attention to nutrition and blood sugar levels.

What causes Diabetes?

Many reasons are there. The cause of Type I diabetes is genetically based, coupled with an abnormal immune response.

The cause of Type II diabetes is still unknown. Medical experts believe that Type II diabetes has a genetic component, but that other factors also put people at risk for the disease. These factors may include:

- Obesity and overweight
- sedentary lifestyle
- Lack of physical exercise and movements
- advanced age
- unhealthy diet
- family history of diabetes
- improper functioning of the pancreas gland

- minority race (higher risk in Black, Hispanic, American Indian, westernized Asian and native Hawaiian populations)
- medication (cortisone and some high blood pressure drugs)
- women having given birth to a baby weighing more than 9 lbs.
- previously diagnosed gestational diabetes (read above the third kind of diabetes)

What are the main Symptoms of Diabetes?

The most consistent symptom of diabetes mellitus (Type I and II) is elevated (higher) blood sugar levels. In Type I diabetes, this is caused by the body not producing enough insulin to properly regulate blood sugar. In Type II diabetes, it is caused by the body developing resistance to insulin, so it cannot properly use what it produces.

Some of the common early warning signs of diabetes are:

- Excessive thirst (it is not related to exercise, hot weather, or short-term illness)
- Excessive hunger (Even after having "enough", still hungry all the time)
- Frequent urination (often noticed because you must wake up repeatedly during the night)
- Tiredness and fatigue (possibly severe enough to make you fall asleep unexpectedly after meals), one of the most common symptoms of diabetes.
- Rapid and/or sudden weight loss (any dramatic change in weight is a sign to visit a doctor immediately)
- Though many of the signs and symptoms of diabetes can also be related to other causes, testing for diabetes is very easy, and the constant/regular presence of one or more of these symptoms over an extended period of time, should ring alarm bells in your ears.

If diabetes is suspected, tested for, and diagnosed when those symptoms first start appearing, other more serious symptoms of advanced diabetes can often be prevented or have their onset significantly delayed through diet, exercise and proper blood sugar management.

However, often the 'minor' symptoms of diabetes go unrecognized, and physical and neurological problems may arise, resulting in some of the following symptoms:

- Blurred vision (diabetes can lead to macular degeneration and eventual blindness)
- Numbness and/or tingling in the hands and feet (peripheral neuropathy, a symptom of diabetes, causes nerve damage in the extremities)
- Slow healing of minor scratches and wounds (diabetes often leads to impaired immune system function)
- Recurrent or hard-to-treat yeast infections in women (another sign of impaired immune function)
- Dry or itchy skin (peripheral neuropathy also affects circulation and proper sweat gland function)

If you are experiencing any of these symptoms on a regular basis, or you recognize these symptoms in a child or relative, they may be signs of untreated diabetes. A doctor's appointment should be made as soon as possible to start treatment.

Diagnosis of Diabetes : The doctor will ask you a number of questions, your complete history and go for physical examination. He will also perform a battery of laboratory tests. There are numerous tests available to diagnose diabetes, such as a urine test, blood test, glucose-tolerance test, fasting blood sugar and the glycohemoglobin (HbA1c) test.

- A urine sample will be tested for glucose and ketones (acids that collect in the blood and urine when the body uses fat instead of glucose for energy).
- A blood test is used to measure the amount of glucose in the bloodstream.
- A glucose-tolerance test checks the body's ability to process glucose. During this test, sugar levels in the blood and urine are monitored for three hours after drinking a large dose of sugar solution.
- The fasting blood sugar test involves fasting overnight and blood being drawn the next morning.
- The glycohemoglobin test reflects an average of all blood sugar levels for the preceding two months.

TREATMENT, MANAGEMENT & PREVENTION

Treatment of Diabetes

Medical fraternity has been working hard to find solutions to all the chronic conditions in various diseases. Diabetes is not an exception. A 10 year landmark study, multi-centre; Diabetes Control and Complications Trial (DCCT), has now shown that intensifying diabetes management with stricter control of blood sugar levels can reduce long-term complications. The results of DCCT are extraordinary in that they prove that tight control of glucose levels can in fact dramatically slow the onset and progression of diabetic complications in both Type I and Type II diabetes. Additionally, researchers have found strict attention to diet and exercise also helps in the management of diabetes.

Management of Type I Diabetes

Almost everyone with Type I diabetes (and more than one in three people with Type II) must inject insulin to make up for their deficiency. Until recently, insulin came only from the pancreases of cows and pigs (with pork insulin more closely duplicating human insulin). While beef, pork and beef/pork combinations are still widely used, there are now two types of "human" insulin available: semisynthetic (made by converting pork insulin to a form identical to human) and recombinant (made by using genetic engineering). All insulin helps glucose levels remain near normal (about 70 to 120 mg/dl).

Different types of insulin work for different periods of time. The numbers shown below are only averages. The onset (how long it takes to reach the bloodstream to begin lowering the blood sugar), peaking (how long it takes to reach maximum strength) and duration (how long it continues to lower the blood sugar) of insulin activity can vary from person to person and even from day to day in the same person.

Rapid or Regular Activity: Onset is within half an hour and activity peaks during a 2 to 5 hour period. It remains in the bloodstream for about 8 to 16 hours. These fast-acting, short-lasting insulin are useful in special cases: accidents, minor surgery or illnesses, which cause the diabetes to go out of control or whenever insulin requirements change rapidly for any reason. These

are also being used more and more in combination with a long-acting insulin or alone (prior to meals and at bedtime).

Semilente: A special type of short-acting insulin that takes 1 to 2 hours for onset, peaks 3 to 8 hours after injection and lasts 10 to 16 hours.

Intermediate-Acting: Reaching the bloodstream 90 minutes after injection, intermediate-acting insulin peaks 4 to 12 hours later and lasts in the blood for about 24 hours. There are two varieties of this type of insulin: Lente (called L) and NPH (called N).

Long-Acting: These insulins, which take 4 to 6 hours for onset, are at maximum strength 14 to 24 hours after injection, lasting 36 hours in the bloodstream. Long-acting insulin is referred to as U (for Ultralente).

Please be aware of the following problems that exist with insulin intake:

Hypoglycemia (low blood sugar) is sometimes called an insulin reaction or insulin shock. It can occur suddenly in people using insulin if too little food is eaten, if a meal is delayed or in the case of extreme exercise. Symptoms include feeling cold, clammy, nervous, shaky, weak or hungry, and some people become pale, have headaches or act strangely.

Hyperglycemia (high blood sugar) occurs when too much food is eaten or not enough insulin is taken. The warning signs are large amounts of sugar in the urine and blood, frequent urination, great thirst and nausea.

Ketoacidosis (in its most severe form - diabetic coma) develops when insulin and blood sugar are so out of balance that ketones accumulate in the blood. Symptoms include high blood sugar or ketones in the urine, dry mouth, great thirst, loss of appetite, excessive urination, dry and flushed skin, labored breathing, fruity-smelling breath and possible vomiting, abdominal pain and unconsciousness.

In addition to daily injections of insulin, regular physical activity and a controlled diet are essential. The American Diabetes Association (ADA) recommends the following daily dietary guidelines:

- Up to 70 percent of all calories should be obtained from carbohydrates and unsaturated fats. These carbohydrates should be mainly complex carbohydrates and naturally occurring sugars (similar to those in milk and fruits). Examples of unsaturated fats are vegetable oils and margarine.
- Between 10 and 20 percent of calories should be obtained from protein.
- Less than 10 percent of all calories should be obtained from fat. Saturated fats are found in animal products and in some vegetable oils (such as coconut, palm, and palm-kernel oils).
- Eat 30 to 35 grams of fiber.
- Eat no more than 300 mg of cholesterol.
- For Type I diabetes, the meal plan should be tailored to the person's individual needs and is likely to include three meals and two or three snacks a day. A person with diabetes must eat these meals and snacks at set times each day to properly balance insulin.

Management of Type II Diabetes

The ADA recommends diet (see ADA guidelines stated above) and regular physical activity as the first line of treatment for Type II diabetes. If normal

glycemic levels are not achieved within three (3) months, drug treatment is recommended.

Currently there are four (4) classes of prescription drugs available for the treatment of Type II diabetes:

- 1) which stimulate the pancreas to release more insulin.
- 2) which keep the liver from releasing too much glucose.
- 3) which slow the digestion of some carbohydrates.
- 4) which control glucose levels by making muscles more sensitive to insulin and reduce the amount of glucose that the liver produces.

Clinical trials suggest that oral anti-diabetic agents which act on the liver and skeletal muscle) - may be useful in delaying or preventing development of Type II diabetes. Both agents, acting primarily by different mechanisms of action, also have demonstrated potential beneficial effects on serum lipid profiles.

Although these oral medications work in different ways, they can be combined to work more effectively to manage Type II diabetes. When these combinations of oral treatments are no longer effective (for about 60 percent of people with Type II diabetes), the doctor will start a regimen of insulin alone or in combination with an oral medication.

Prevention of Diabetes

There is no foolproof way to prevent diabetes, but steps can be taken to improve the chances of avoiding it:

Exercise. Studies of both men and women have shown that vigorous exercise, even if done only once a week, has a protective effect against diabetes. Exercise not only promotes weight loss but lowers blood sugar as well.

Lose weight. There is evidence that both men and women who gain weight in adulthood increase their risk of diabetes. A study conducted at Harvard showed that adult women who gained 11 to 17 pounds since the age of 18 doubled their risk of diabetes; those who gained between 18 and 24 pounds almost tripled their risk. Fact: 90 percent of diabetics are overweight.

Diet. The use of a diet low in calories and in saturated fat is an ideal strategy for preventing Type II diabetes. (See the ADA guidelines stated in the TREATMENT section).

Stop smoking. Smoking is especially dangerous for people with diabetes who are at risk for heart and blood vessel diseases.

Use alcohol in moderation. Moderation for men means no more than two drinks a day; for women, one drink is the limit. Choose drinks that are low in alcohol and sugar such as dry wines and light beers. If you use mixers, try to select one that is sugar free, such as diet drinks, club soda, seltzer or water. If you take diabetic pills or insulin, alcohol can drop blood glucose levels too far. Have the drink with a meal or snack.

Diabetes is now common. Lifestyles have been changing. Many diseases have been taking toll of the humans. But it is always in our hands to manage, control or prevent such diseases. We should be the masters of our own self and control our desires and bodies. Nothing is impossible. With proper management, even the persons with chronic diabetic conditions, are leading happier and healthier lives. Change your attitude towards life and the problems within.

Diabetes: Ayurveda Point of View

In today's stressful modern living, incidence of Diabetes is definitely increasing. Every now and then we come across patients of Diabetes seeking Ayurvedic treatment and advice.

According to Ayurveda, diabetes known as **Madhumeha**, its incidence is higher amongst the older and the obese. Originating from an absolute or relative lack of insulin, it gives way to abnormalities in the metabolism of carbohydrates, proteins and fat in the body. Characterised by abnormally high levels of blood glucose and its subsequent excretion through urine. Ayurveda says that it is a metabolic kapha type of disorder in which diminished functioning of agni leads to a tendency toward high blood sugar. It is a chronic metabolic disorder in which the body is unable to make proper use of glucose resulting in hyperglycemia (high blood sugar) and glycosuria (sugar in urine).

If not taken care of, diabetes can lead to a host of long-term complications like:

- Heart attacks.
- Strokes.
- Kidneys and other organ failures
- Blindness.
- Nerve damage.
- Amputation of Limb.
- Impotence in men.
- Pruritus (Itching)

Root Causes

- Overeating and consequent obesity
- Excessive intake of sugar and refined carbohydrates
- Proteins and fats which get converted into sugar if taken in excess.
- Excessive tension, worry, anxiety & grief
- Hereditary factors

Symptoms

- Constant feeling of hunger and thirst.
- Weight loss
- Quick exhaustion. Drowsiness. Low sexual urge.
- Possible anaemia, constipation, itching around genital organs, palpitation.
- Slow healing of wounds.
- Blurry vision.
- Fatigue

In Ayurveda, diabetes is cured using a multi-dimensional approach. First of all, the care is taken about diet, eliminating sugar and simple carbohydrates, and emphasizing complex carbohydrates. Protein is limited, since excessive intake can damage the kidneys. Fat is also limited because there is often a deficiency of pancreatic enzymes, making fat digestion difficult. Since many diabetics have auto-antibodies, a cleansing program is instituted. Panchakarma is typically used for this purpose. This begins with herbal massages and an herbal steam sauna, followed by fasting to cleanse the body. This is followed by an herbal purge for the liver, pancreas, and spleen. Colon therapy is next, first to cleanse the digestive tract and then to reconstitute the system.

There are a number of herbal preparations for diabetics in Ayurveda. Exercise is another cornerstone of ayurvedic treatment of diabetes. Yoga and breathing exercises are traditionally used.

Herbs for Diabetes: The most important herbs for all doshas are shilajit, gudmar turmeric, neem, amalaki, guggul, and arjuna. Turmeric with aloe vera gel (1 to 3 gms./ .035 to .1 oz) is best used during the early stages of diabetes for regulating pancreas and liver functions.

1. Juice of bitter melon or bitter gourd (*Momordica dioica*, Roxb., Karela), or Rose apple (*Eugenia Jambos*, Linn., Jambu) or two tender leaves of Bilva (*Aegle Marmelos*, Corr., Bael fruit) and Neem (*Melia azadirachta*, Ravipriya, or Indian Lilac) may be taken on empty stomach daily. Juice of Jambu should be taken in an ounce quantity twice daily, and that of Karela in 1-1/2 ounce dose daily. Shilajit (*Swertia Decussata* Nimmo.) is another useful medicine (250 mg as a single dose) should be taken, twice daily with juice of stone apple.

2. Use turmeric. Fill some 00-size capsules with turmeric, and take 2 capsules 3 times a day, a few minutes before meals. Continue this program for up to a month, and then re-evaluate your condition. Clinical observation suggests that a person who is insulin dependent will experience a markedly diminished requirement for insulin; the diabetes can often be brought under control.

3. Take 1/2 teaspoon of ground bay leaf and 1/2 teaspoon turmeric, mixed in 1 tablespoon aloe vera gel. Take the mixture twice a day before lunch and dinner.

4. The ayurveda preparation Vasanta Kusumakar Ras, is very good but is extremely costly. Take two grains daily with a tsp. of cream or honey. In certain cases, the said medicine brings down sugar level quite quickly, hence sugar-levels should be carefully monitored. When sugar has touched its normal range, the dose should be lowered gradually, and added with 500 mg pill of Chandraprabhavati.

5. Mix and grind seeds of Fenugreek (Methi) 100 gm, turmeric 50gm, Dakhni Mirch (white pepper). Take one teaspoon of this powder with a glass of milk twice daily. Alternately, immerse and soak one teaspoon of fenugreek seed in water. Take this in the morning, with water or with milk.

6. Take twice daily, with powder of rose apple stones (powder of Jambu or Jamun-ki-Guthali).

7. Include decoctions of triphala, fenugreek, musta, arjuna, sandalwood, lodhra, ajwan, gokshura, vidanga, guduchi, haritaki, and chitrak. These may be taken with a small amount of ghee. Gudmar and shilajit are excellent.

8. Amalaki Churna (500mg), Haldi Powder (Turmeric Powder) 500mg and Naag Bhasma (125mg) should be taken with honey, twice daily (A 12-hourly dose).
Diet

9. Gudmar is the best herb for digesting sugar in the pancreas. A combination of gudmar and shilajit is an excellent remedy for diabetes that is often prescribed by Ayurvedic practitioners.

Plan your Diet: Avoid excess intake of sweets, carbohydrates, and dairy products. Take more fresh vegetables and bitter herbs. Other useful foods include: roasted or fried barley, corn flour, bitter vegetables, barley porridge, rice, and herbs like gokshura, gudmar, triphala, musta, cardamom, fenugreek, or coriander, mixed with honey. Triphala with amalaki juice can also be used to heal

diabetes. Barley is the main food to heal urinary diseases. Other important benefits can be had from strenuous exercises, oil massage, steam, and waist bath.

Avoid sugar in any form: rice, potato, banana, cereals & fruits containing high percentage of sugar content.

Vegetables: Bitter Gourd, string beans, cucumber, onion, garlic

Fruits: Indian Gooseberry, Jambul Fruit, Grape Fruit.

Grains: Bengal gram, black gram.

Dairy Products: Home-made cottage cheese and various forms of soured milk such as curd and butter milk.

Emphasis should be on raw vegetables & herbs as they play a part in stimulating the pancreas and enhancing insulin production

- Eliminate all objects that contain sugar from diet, like wheat, rice, potato, sugar, sugar cane and its juice, jaggery, sweet fruits.
- Reduce fats, especially butter and ghee from diet.
- Take barley soaked in a triphala decoction overnight, then mixed with honey and eaten several times a day.
- Orange, and lemon, may be taken as and when needed.
- Take bitter melon, in any form, without any fear, and Jamun and powder of its seed.
- Take plenty of green vegetables, black gram, soy, fish etc.
- Put one cup of water into a copper vessel at night, and drink the water in the morning.
- Take long walks in the morning and evening.
- Do Pranayama and Yoga under the supervision of a qualified teacher.

Lifestyle

- Don't indulge in day-time sleep.
- Should take care not to injure yourself as you take time to heal. As a result, there is a possibility of the wound becoming septic.
- Should take adequate eye care as the disease in serious condition might affect the eye.
- If you are afflicted by any other disease, you should take prompt actions since you lack resistance.
- Foot care.

Can I live a normal life with diabetes? Yes, you can live a normal life. Remember, many successful athletes and people in all professions have type 1 diabetes. You can stay healthy if you do what it takes to control diabetes.

(Source: Ayurved Nighantu / Medical India dot org / Dr. L. Rahman /All dot Ayurveda / Ayurveda for you / Dr.Rob Hicks, Diabetic Association USA / UK / India /)

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