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EDITOR'S Desk

A practical guide to better understand & manage Diabetes Mellitus.*

This handy guide is a must-read for people who are interested to know more about Diabetes whether for preventive measures or if you are a diabetic who wishes to manage your diabetes well.

Diabetes mellitus is the most common disorder of the endocrine system and is caused by abnormal levels of sugar in the blood. Unlike Type 1 diabetes which is more common in young people due to a lack of insulin being produced by the body, Type 2 Diabetes is caused by the body's resistance to insulin. The latter is the more prevalent form in Singapore, afflicting mostly older patients.

Insulin is a hormone produced by the pancreas which helps us convert blood sugar (glucose) into energy. When insulin is in deficit or is ineffective, excess glucose accumulates in the blood stream and affects normal body function. A proper diet and healthy lifestyle is pertinent to cope with this condition, and anti-diabetic medication is also prescribed by your doctor if non-pharmacotherapeutic methods to reduce blood glucose are ineffective.

Over time, high sugar levels can give rise to problems like infections, blindness, foot/leg disorders, kidney failure, heart disease and circulatory problems such as high blood pressure, hardening of arteries (atherosclerosis), heart attacks and stroke.

On a global scale, the number of people with diabetes is expected to increase alarmingly in the coming decades. Currently, up to 150 million people are estimated to have diabetes. Based on a report in Berita Harian (Singapore's Main Malay Newspaper, 16th November 2005), there were approximately 336,000 diabetics in Singapore with Indians (15.3%) having the highest prevalence of diabetes among the various ethnic groups compared to 11% in Malays and 7.1% in Chinese.

This guidebook provides a basic overview of diabetes and offers an alternative perspective in terms of herbal and holistic care, in addition to the usual advice dispensed by healthcare professionals. Diabetics and their caregivers will therefore find it very useful.

We hope that you will have a better picture of how to manage diabetes and to improve your quality of life after reading this book. Here's to sweeter days ahead!

Happy reading!



Jodean Cheong
Managing Director

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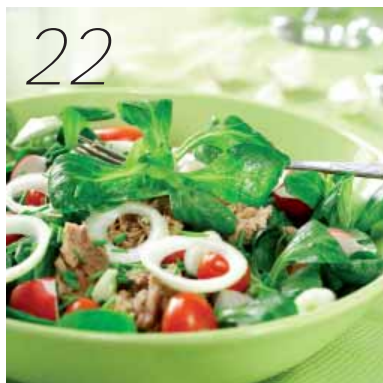
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Diabetes Uncovered



Understanding Diabetes Mellitus

We've heard the word often enough. It inevitably crops up each time you are asked by a medical professional about your personal medical history as well as your family's history.



Diabetes is a disorder of metabolism (the way our bodies use digested food for growth and energy). Most of the food we eat is broken down into glucose; a form of sugar in the blood.

The glucose is absorbed by the bloodstream, and is then known as blood glucose or blood sugar.

In a person without diabetes, insulin (a hormone) is released by the pancreas after a meal or snack to allow the glucose in the blood to get into the body's cells, where it is burned for energy. This brings the level of glucose in the blood back down to the normal range.

In people with diabetes, however, the pancreas either produces little or no insulin, or the cells do not respond appropriately to the insulin that is produced. This results in high blood sugar, more commonly known as diabetes.

Medically known as Diabetes Mellitus, it stems from the Greek word 'Diabetes' = 'to siphon or pass through' and the Latin word 'Mellitus' = 'sweet as honey'.



Singapore's diabetic landscape

Based on studies reported in 2005, there are approximately 336,000 diabetics in Singapore. Indians have the highest prevalence of diabetes among the ethnic groups at 15.3% compared to 11% in Malays and 7.1% in Chinese.

What are the Symptoms of Diabetes? *

If you have diabetes, you may experience frequent urination, excessive thirst, unexplained weight loss, extreme hunger, sudden vision changes, tingling or numbness in hands or feet, feeling very tired most of the time, very dry skin or/and sores that are slow to heal. You will be more susceptible to infections.

These symptoms may resemble other ailments. Ants may sometimes be found near urine, due to the high level of glucose excreted by the kidneys.

Nausea, vomiting, or stomach pains may also accompany some of the symptoms in the abrupt onset of insulin-dependent diabetes, now called Type I Diabetes.

How is Diabetes diagnosed?

Diabetes can be diagnosed by the symptoms as well as a series of tests



If one is symptomatic, a single reading of a **Random Blood Glucose** level test which reads 200 mg/dl (11.1 mmol/L) or greater, is diagnostic.

If one has no symptoms, a **Fasting Blood Glucose** level test (after you have fasted for about 10 hours) which reads 126 mg/dl (7.0 mmol/L) and greater on 2 occasions is diagnostic.

A **Glucose Tolerance Test** is sometimes done as a confirmatory test.



Who gets Diabetes?

Staying healthy with diabetes includes first being aware that you have it. You are at risk of diabetes if you are more than 40 years old. Type 2 diabetes commonly affects those over 40 years old. It is often more common in people who do not exercise regularly and who are overweight and have a family history of diabetes. Having been diagnosed with gestational diabetes or delivering a baby over 4 kg (9 pounds) or greater could put you at risk of developing diabetes. A low HDL cholesterol reading and elevated triglycerides can indicate you are at risk of Type 2 diabetes, as well as habitual inactivity, a diagnosis of polycystic ovary syndrome and a history of vascular disease. An impaired glucose tolerance refers to a pre-diabetes state where levels of blood glucose concentration are above the normal range but below those that are diagnostic for diabetes. For unknown reasons, Type 2 diabetes is more common in Indians and Malays.

What is Type 1 diabetes?

Type 1 diabetes, sometimes called juvenile diabetes, begins most commonly in childhood or adolescence. People with Type 1 diabetes cannot control their blood sugar properly because their pancreas produces little or no insulin. The body's own immune system mistakenly destroys the insulin producing cells in the pancreas. This form also is called insulin-dependent diabetes because people who develop this type need to have daily injections of insulin.

They need insulin injections to control their blood sugar. This usually happens to young people, and less commonly in older adults.

People with Type 1 diabetes usually have obvious symptoms and signs that include increased thirst and urination, constant hunger, weight loss, extreme tiredness, blurred vision and in severe cases, coma.

What is Type 2 Diabetes?

Type 2 Diabetes is a chronic illness that is defined as an abnormality in the way the body processes glucose. The digestive system breaks down carbohydrates-sugars and starches-to glucose, which the body uses as its primary fuel. Although the body produces enough insulin, and in some cases, too much insulin, it is unable to efficiently use that insulin to regulate glucose. Blood glucose levels will rise and can cause complications in all organ systems of the body. Diabetes is a major cause of death in this country, either directly through its complications or more indirectly through cardiovascular disease; most people with diabetes will die from heart attack or stroke.

Most people with Type 2 Diabetes may not be able to tell that they have diabetes. No early symptoms appear and the disease is only diagnosed several years after its onset, sometimes when complications are already present. When their blood glucose gets very high (usually when the person is sick or under a lot of stress), signs may include increased thirst, frequent urination, blurred vision, dry, itchy skin and poor wound healing.

What are the dangers associated with Type 2 Diabetes?

In patients with Type 2 Diabetes, the major complications can be put into two groups. They are microvascular and macrovascular complications, which means small-vessel complications and large-vessel complications respectively.

Microvascular diseases are significantly related to the high blood glucose levels. These complications include what most of us associate with diabetes. The first one is diabetic eye disease, which can cause decreased vision and lead to blindness. The second one is diabetic kidney disease, which can lead to dialysis. And the third is diabetic nerve disease, neuropathy, which can lead to amputations of the toes and feet and progressively worsening disease.

Microvascular diseases, which include heart attack, stroke and peripheral vascular disease, have a variety of causes, not just blood sugar. They are related to characteristics of metabolic syndrome such as high blood pressure and high cholesterol. In most patients with diabetes, their cause of death is related to these complications. So most patients do not die of diabetes; they die of heart disease and stroke, but Type 2 Diabetes is one of the major causative factors of heart attack and stroke.

High blood glucose levels damages the small and large blood vessels in the body, particularly in the eyes, kidneys, nerves, heart and brain. Blood flow to the various organs and tissues is reduced or even cut off, causing damage. If the nerves in the hands and feet are affected, there is a loss of feeling. Such people often injure themselves without realising it. The wounds are slow to heal and become infected easily.

Complications of diabetes include:

Coma or loss of consciousness - Three types of coma are ketoacidotic coma, hyperosmolar coma and hypoglycaemic coma. A hyperosmolar coma is caused by severe dehydration and very high blood glucose levels (hyperglycaemia). Events that may lead to high blood glucose levels include forgotten diabetes medications or insulin, an infection or illness, such as the flu or pneumonia and an increased intake of sugary foods or fluids.

Eye disease and blindness and kidney failure - The high blood sugar in the bloodstream has the ability to attach to a variety of proteins in the body such as proteins in the eyes and kidneys. This attachment of sugar to these proteins damages them and this leads to weakening of the vessel. For example, in the eye, the attachment causes leakage of fluid and blood into the eye, thereby causing diabetic eye disease. Similar effects happen in the kidneys and in the nerve endings.

Heart disease and stroke - People with diabetes are at increased risk of stroke because diabetes adversely affects the arteries, predisposing them to atherosclerosis. Multiple studies have shown that people with diabetes are at greater risk for stroke compared to people without diabetes regardless of the number of risk factors they have. Overall, the risk of cardiovascular disease (including stroke) is two-and-a-half times higher in men and women with diabetes compared to people without diabetes.

Nerve damage with loss of feeling or tingling sensations - About half of all people with diabetes develop diabetic neuropathy due to the fact that diabetes, like most metabolic disorders, causes nerve cell malfunctions and damage.

Foot ulcers and amputations - People with diabetes develop foot infections because their immune response, which is responsible for fighting infections, does not function as well as non-diabetics. Diabetics are prone to developing wounds which then offer a portal of entry for infections and the development of numbness in the feet. They have difficulty protecting themselves. Diabetics often develop other health problems, such as poor circulation, which affects the ability to fight infections.

Impotence or Erectile Dysfunction - Nerve damage, or neuropathy as it is known, can come about because ongoing high blood sugar levels damage the blood vessels that bring oxygen and nutrients to the nerves. When the nerves are damaged they are not able to transmit signals properly. If the nerves that supply the penis are damaged, the message from the brain doesn't reach the penis and it doesn't respond. You may also suffer from ejaculation problems related to the nerve damage.



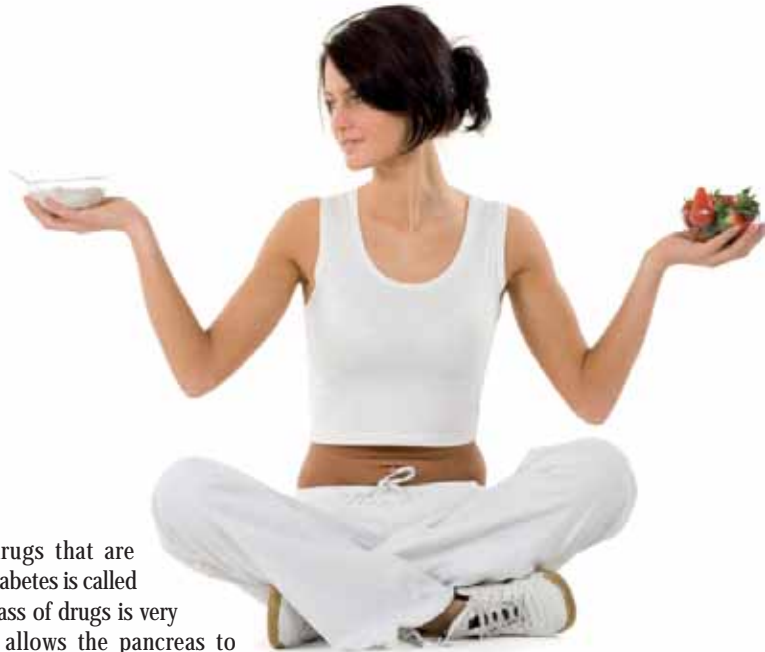
Primary mode of treatment

Lifestyle modification is really the cornerstone of treatment for Type 2 Diabetes. And what that means is diet and exercise or physical activity. Increasing physical activity is not necessarily about joining the gym or running a marathon. It's really just taking the stairs when you're at your office or at home, walking up your apartment instead of taking the lift or gardening. A variety of moderate levels of physical activity can add up to much improvement in Type 2 Diabetes.

Medical therapy available

When a Type 2 patient who has been good with his diet and exercise realizes that he needs additional help because his blood glucose levels are rising despite their best efforts, the first class of drugs that we use is a class called insulin sensitizers.

What we're trying to do is to make the body less resistant to insulin, and this class of drugs can address the problem at the level where resistance takes place, which is in the liver, fat or muscle.



The next class of drugs that are available for Type 2 Diabetes is called sulfonylureas. This class of drugs is very different because it allows the pancreas to produce larger amounts of insulin. Sulfonylureas work by stimulating the beta cells of the pancreas. Beta cells are the insulin-producing cells. This insulin is then released into the bloodstream and assists in lowering blood sugar.

Another class of drugs called alpha-glucosidase inhibitors decreases or prolongs the absorption of carbohydrates, meaning starches, from the gut or the intestinal tract. So when people consume carbohydrates, they're not absorbed all at once and they don't raise blood sugar as quickly or as much. If patients with Type 2 haven't achieved their blood sugar goals by using a variety of oral treatments along with diet and exercise, the next step in their treatment is definitely insulin.

Type 2 diabetes must control their blood sugar

In most, if not all, patients, Type 2 Diabetes can be well controlled. There are a variety of clinical studies showing that, if patients control their blood sugar, they will not go on to develop the severe diabetes complications of blindness, amputation and kidney disease . [DC](#)

Knowing your A1C

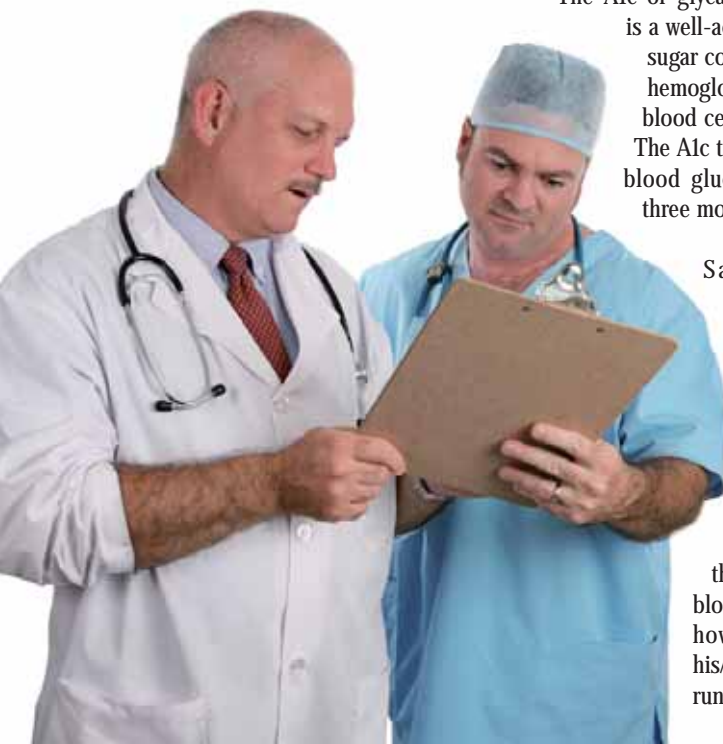
Every 1% drop in the test score reduces the risks of diabetes-related complications

Many with diabetes may not know how important the A1c is as an indicator to help better control the killer disease. Just as children should know their ABCs, those with diabetes should know their A1c.

The A1c or glycated hemoglobin (HbA1c) is a well-accepted measure of blood sugar control. A1c is formed when hemoglobin, a protein in the red blood cells, links up with glucose. The A1c test measures your average blood glucose level over the past three months.

Said Dr Kevin Tan, a endocrinologist in private practice and Vice-President of the Diabetic Society of Singapore, “All patients with diabetes should have their A1c tested up to 4 times in a year.

This gives an idea of the overall control of their blood sugar levels, and hence how well one is managing his/her condition in the long run.”



But preliminary results of a survey by SingHealth and GlaxoSmithKline found only a few (19% of the 100 surveyed) have heard of A1c, or know it to be an index for glucose control and that the optimal A1c target to achieve is 7% or below.

Most people with diabetes know about the standard blood sugar testing to gauge control of their condition. Diagnosed with Type 2 diabetes about eight years ago, Mr K.S. Yong, 53, just checks his fasting blood sugar whenever he sees his doctor. It therefore surprised him to find that he had developed serious eye complications despite having regular good blood sugar levels.

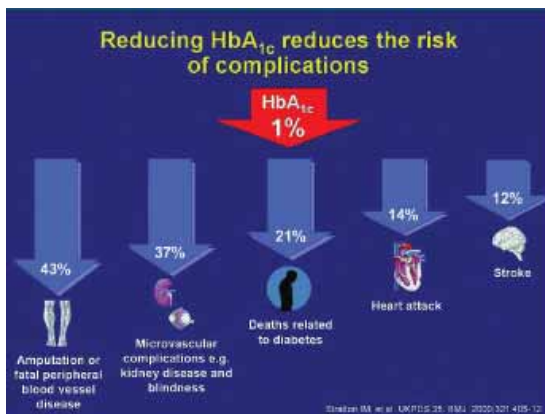
Such is the common misconception - that blood sugar testing is all that is needed to tell about the control of one's diabetes. Dr Tan said, "I have come across many patients who just rely on the occasional blood sugar checks at their doctor's visit. There are others who may self-monitor their blood sugars infrequently and believe that this is representative of their overall blood sugar control and diabetes state. Blood sugar levels vary daily and before and after each meal. To get an accurate idea of overall blood sugar control, one would have to check frequently before and after meals. A good complementary test would be the A1c - the average blood sugar over the preceding 3 to 4 months. This would be a better indication of diabetes control.



A1c - a more accurate measure

When diabetes is left uncontrolled, there is excess glucose in the blood. Suppose your blood glucose level was high last week because you ate a box of sugary doughnuts, whereas this week, your prick test shows an ideal blood glucose level because, guilt-stricken, you stuck firmly to your

recommended diet. You might have been lulled by your prick test into thinking that your diabetes is under control. But your red blood cells carry the 'memory' of last week's misdemeanor - through the A1c level, which does not fluctuate and cannot be faked.



In this way, A1c is a more accurate long-term measure that gives you and your doctor an honest assessment of how you've been managing your diabetes.

What healthy A1c scores tell you

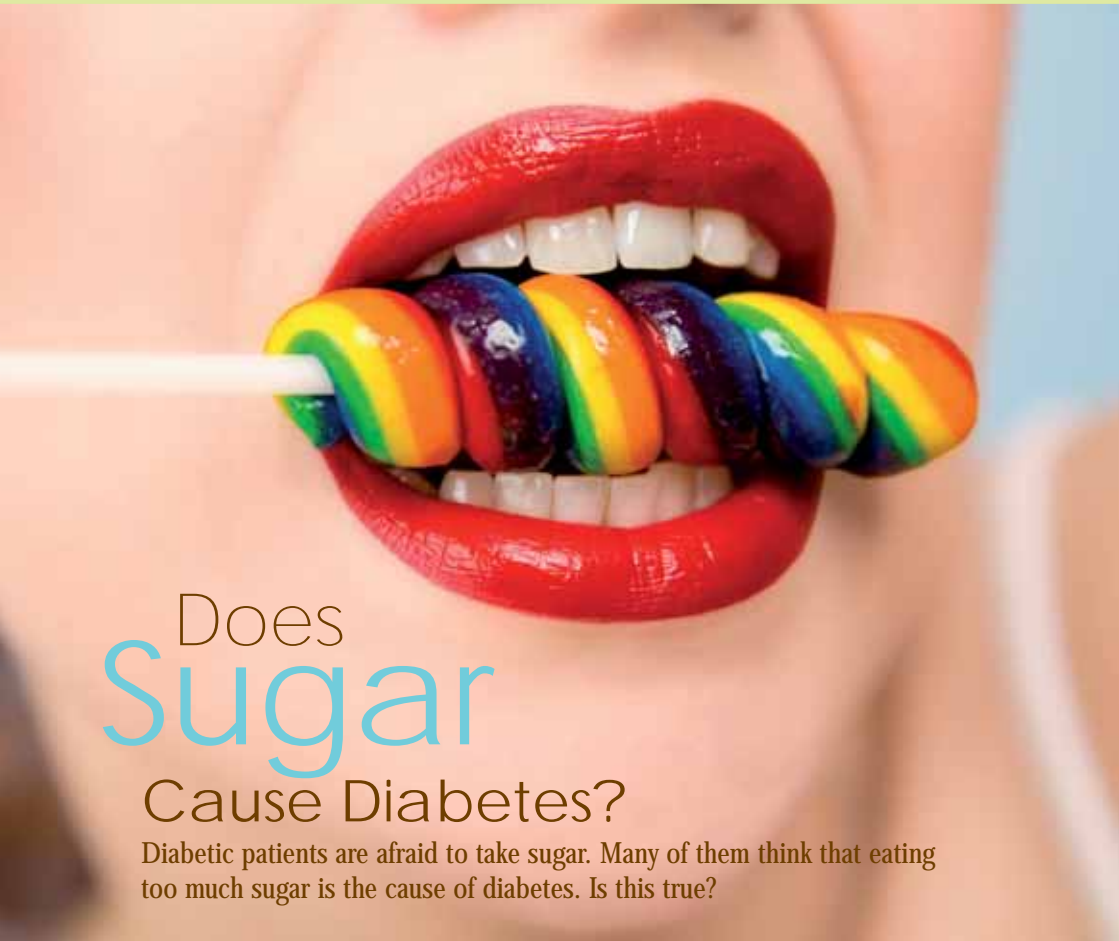
You should try to score an A1c of 7% and below, according to the latest Ministry of Health's clinical practice guidelines to doctors. Studies show that with each 1% drop, there is significant reduction in the risks of diabetes-related complications like kidney, eye and heart damage (see figure above).

Monitoring your A1c test results will provide timely alert to you and your doctor to adjust your medication and management approach to gain better control of diabetes.

Take your A1c test - today

The test itself is simple and quick and can measure A1c within minutes. It can also help detect pre-diabetics for early prevention. Ask your nearest clinic or hospital for this test.

Why let diabetes rule your life and expose you to needless costly and painful suffering and health complications? Live a healthier and fuller life by asking your doctor for an A1c test today. [DG](#)



Does Sugar Cause Diabetes?

Diabetic patients are afraid to take sugar. Many of them think that eating too much sugar is the cause of diabetes. Is this true?

Sugar is carbohydrate

Carbohydrates are a complex group of foods, which may consist of:

- simple sugars such as glucose (monosaccharides)
- more complex sugars such as cane sugar (disaccharides)
- complex carbohydrates such as starch (polysaccharides), which is found in bread, pasta and potatoes.

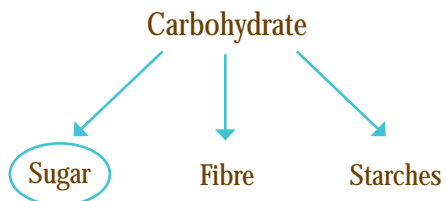


Figure 1

All carbohydrates can be broken down in the body into sugars. The simplest sugar is - glucose. It is the basic unit that produces energy in the cells. Although containing only one form of sugar, a packet of cane sugar is still 100% carbohydrate.

A packet of food that contains starch may have about 3.2g of carbohydrate, of which 0.2g is sugar. This simply means that of the carbohydrate in the food, 0.2g is in the simpler sugar form and the rest of the carbohydrate is in a more complex form.

It doesn't make a lot of difference to your body. The total calorie value is the same and all carbohydrates affect your blood sugar levels: simple sugars are absorbed and burned as energy more quickly; complex carbohydrates need to be converted by your internal biochemical factory into sugars.

Now that we are more familiar with what sugars are, does eating sugar cause diabetes? According to an article in DMLife, dieticians from Alexandra Hospital in Singapore say that much current evidence has shown that some of the risk factors causing the onset of diabetes include:

- Obesity arising from lifestyle factors like excessive food intake and lack of physical activity
- Genetic susceptibility
- Increased intake in dietary fat, especially saturated fat which will decrease insulin sensitivity or increase insulin resistance

The above factors may result in a person being resistant to insulin and this in turn will create stress on the insulin production in the pancreas, therefore increasing the risk of Type 2 Diabetes. But sugar in the diet is not considered as a risk factor for causing Type 2 Diabetes.

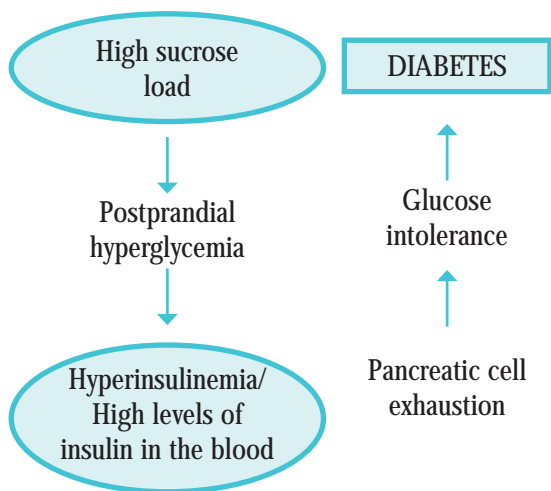


Figure 2

A hypothesized mechanism arising from animal studies has proposed that a high and long term intake of sugar (sucrose) may lead to increased blood sugar and insulin demand, consequently resulting in pancreatic exhaustion and the development of diabetes. Taking sugar rather than noodles will increase the blood sugar sharply with its peak at 60-80 minutes after consumption, giving rise to postprandial hyperglycemia. (Fig 2 represented by the blue).

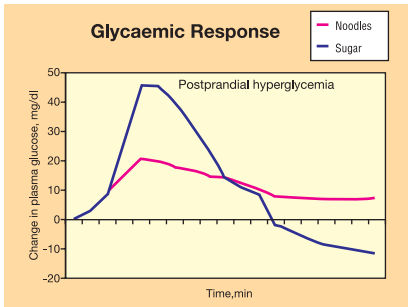


Figure 3

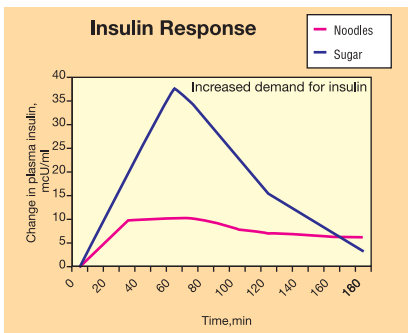


Figure 4

At the same time, the body is being challenged with the increased demand for insulin causing a phenomenon called hyperinsulinemia. (Fig 4 represented by the blue line).

Three studies were done on US women to see if the consumption of sugar contributes to the development of Type 2 Diabetes. The conclusion from the three studies indicated that sugar (sucrose) did not appear to increase the risk of developing diabetes after adjusting for the other risk factors. Therefore, it is suggested that it is alright to incorporate moderate amounts of sugar into a healthy balanced diet.

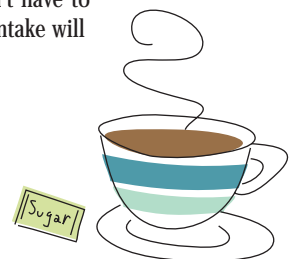
In conclusion, it appears that sugar alone is not a risk factor for diabetes and therefore can be included in a well-balanced diet. However, excessive intake of sugar and fats can contribute to obesity, which is one of the risk factors

for developing diabetes. In addition, if the person has existing underlying resistance to insulin due to the risk factors such as family history, sedentary lifestyle and obesity and continues to consume a lot of sugar or sugary foods and drinks, there will be added stress on the insulin production in the pancreas, therefore increasing the risk of Type 2 Diabetes.

For diabetic patients, the recommended diet is based on the same healthy eating principles that apply to everyone. Use sugar in moderate amounts as part of your total carbohydrate intake, eat less sweet food, read all food labels and have a well-balanced diet with regular exercise to maintain a healthy body weight. You don't have to completely avoid sugar in foods, although cutting down on your intake will help weight control if you are overweight. **DC**

Note:

1. Ludwig D. the Glycemic Index, JAMA 2002 Vol 287, No. 18
2. Diabetes Prevention ADA 2002



A woman with dark hair, wearing a white tank top and white wide-leg pants, is performing a yoga pose (Vrikshasana) on a piece of weathered driftwood. She is standing on her right leg, with her left leg raised and foot resting on her right thigh. Her arms are extended horizontally to the sides, with her right hand in a mudra. The background is a clear blue sky and a dark blue ocean. The text 'Diet & Keeping Fit' is overlaid on the left side of the image.

Diet & Keeping Fit

Diabetic Diet

You have just been diagnosed with having diabetes, what now? Does that mean your diet has to change completely? Do you have to avoid taking sugar from now on? Those are perhaps some of the questions that most people ask. Well, you'll be pleased to know that a diet plan for diabetes is very similar to eating a healthy diet which is recommended for everyone.



Simple carbohydrates like sugar were once strictly forbidden. But now the experts are treating all carbohydrates - sugars and refined flours as well as complex carbohydrates such as rice, potatoes, beans, and cereals - as a single group in which trade-offs are possible. Carbohydrates are nutrients that come from food like grain products, rice, bread, pasta, noodles, fruits, and vegetables. During digestion, your body breaks down most of these carbohydrates into simple sugars, like glucose, which is your body's main source of energy.

Eating carbohydrates affects your blood sugar level. For instance, if you eat a small amount of carbohydrate at a meal, your blood sugar level goes up by a small amount. If you eat a larger amount of carbohydrate at a meal, your blood sugar level goes up by a larger amount.

You will therefore need to find a balance between eating enough carbohydrates to get the energy and glucose you need, and limiting the carbohydrates you eat to control your blood sugar level.

Here are some diet tips to help you manage your diabetes:

- Your meals will need to be regular and spread evenly throughout the day.
- Lower your fat intake, particularly saturated fat.
Fats have the highest energy (kilojoule or calorie) content of all foods. Eating too much fat can cause you to put on weight, which in the long run may make it more difficult in managing your blood glucose levels
- Your meals should preferably include high fibre carbohydrate food such as wholegrain breads and cereals, beans, lentils, vegetables and fruits.

There is no perfect food for diabetics, so including a variety of different food and watching portion sizes is your key to a healthy diet. Along with that, regular physical activity will help you manage your blood glucose levels, reduce your blood fats (cholesterol and triglycerides) and maintain a healthy weight.

For people who have been prescribed oral medication or are using insulin, you will have to take extra care to make sure that your food is balanced with your medications, and exercise. This might sound like a lot of work, but your doctor and/or dietician can help you create a meal plan that is best for you. When you make healthy food choices, you will improve your overall health and you can even prevent complications such as heart disease, some cancers, and hypertension. [DG](#)



Eating Out Tips

Eating out is one of Singapore's "national pastime". Whether it's a business meeting over lunch, dinner from the food court, or a fast-food meal with friends, eating out is a part of our lives. We eat out because it's easy, it's quick, and it's fun. But is it healthy?



It can be. Plan ahead, choose wisely, and you'll find food that fit into your meal plan. You want healthy food because you have diabetes - and you're not alone. More and more people want healthy food choices. Some are watching calories. Others want to keep their cholesterol under control or eat less fat.

Carolyn Leontos, in her book "What to Eat When You Get Diabetes" says, "The important thing is to consciously make food choices to promote your good health. Remember, good health and good glucose control are your goals, and when you achieve them, your weight will naturally take care of itself."

Some food centres or restaurants offer food lower in cholesterol, fat, and sodium, and higher in fiber. Yong Tofu is a good choice, so is nasi padang with vegetables without the lemak gravy. All restaurants offer sugar substitutes and diet drinks. Most have fruit juice and decaffeinated coffee. It's easy to find salads, fish, vegetables, baked or broiled food, and whole-grain breads.

Many restaurants have menu items that are “heart healthy.” Some even list total calories and the percent of calories from fat for these items. If asked, most hawkers would give lean cuts of meat.

Table Tips for Diabetics

Here are some guidelines to follow to help you keep your sodium (salt) intake down when eating out:

- Select fresh fruit or vegetables.
- Select clear soups and porridge.
- Stay away from bread and rolls with salty, buttery crusts.
- Avoid pickles, cured meats, mutton curry.
- Order salad dressings on the side and use small amounts.
- Select plain food including broiled, grilled, or roasted meat, poultry, fish, or shellfish. Select plain vegetables, potatoes, and noodles.
- Request food to be cooked without salt or monosodium glutamate (MSG).
- Avoid restaurants that do not allow for special food preparation (such as buffet-style restaurants).
- Avoid casseroles, mixed dishes, gravies, and sauces.
- Eat slowly.
- Ask for water or green tea.
- Ask for fish or meat broiled with no extra butter or lard
- Order food that are not breaded or fried because they add fat. If the food comes breaded, peel off the outer coating.
- At fast food restaurants, skip the special sauces and cheese.
- Select fresh fruits, ices, sherbet, jelly, agar agar instead of rich nonya cakes and Malay desserts.



Dining On Time

If you take diabetes pills or insulin shots, it pays to think about when you'll eat as well as what you can eat. You can avoid problems by planning ahead. If you're eating out with others, ask them to eat at your usual time. Make your plans so you won't be kept waiting for a table when you should be eating.

Have your reservations and be on time. Avoid the times when the restaurant is busiest so you won't have to wait. Ask whether "special" dishes will take extra time. If your lunch or dinner is going to be later than usual, eat a fruit or starch serving from that meal at your usual mealtime.

If the dinner is going to start very late, you can eat your bedtime snack at your usual dinner time. Then, eat your full dinner at the later hour. You may need to adjust your insulin to do this.

Your order, please?

Remember the old joke - "a minute on the lips, a lifetime on the hips?" The rich food we eat may stick around a lot longer than we'd like. It may linger in our bodies as excess body fats and extra pounds. To avoid seeing today's lunch on your hips tomorrow, make sure you make the right choices when you place your order when eating out. **DC**



Curb Eating Indulgence



Dr Dagmar Liechti von Brasch in Switzerland, the niece of the famous Swiss physician Max Bircher Benner, continued to run the Bircher-Benner clinic for 40 years after his death. According to Dr Dagmar Liechti von Brasch, in her book, *Diabetic Discipline*, diabetics should be aware of what they eat. Here are 10 basic rules that all diabetics should take note of.

1. **Be careful of what you eat.** The more diabetics eat, the more sugar they have in their systems; whatever they eat can be converted into sugar. Therefore, remember: restrain!
2. **Don't overeat.** During World War I and II, when food was scarce, there was a definite decline or even disappearance of diabetes. Diabetes is unknown in tribes that suffer from hunger. So diabetes is a disease of peace, prosperity and overindulgence.
3. **Eat whole foods.** Overeating and under-exercising leads to obesity. The pancreas, heart, blood vessels, kidneys, liver and nervous system will be damaged. With a healthy, limited but high quality diet, diabetics can ease the strain on the metabolizing organs.
4. **Fill your plate with alkaline fruits and veggies.** Because of their slower metabolism of fat and protein, diabetics tend to suffer from acidosis (overly acidic body chemistry). For this reason, eat a diet rich in alkaline-forming fruits and vegetables to help balance that acidity.
5. **Eat unprocessed, complex carbohydrates.** White sugar and white flour are absorbed very quickly and require the pancreas to quickly distribute large amounts of insulin. This stresses the diabetic body beyond its control and allows the carbohydrates to flow in the blood and urine without incorporating them into tissue or the liver. The unprocessed carbohydrates in fruit, vegetables, whole grains and honey are digested much slower because of their complex form. Saliva and gastric juices begin the

digestion process and the pancreas has time to initiate insulin secretion without stress and can then metabolize more carbohydrates. Chewing food well and eating slowly is crucial too. Remember, avoid all processed forms and eat unprocessed and complex carbohydrates.

6. **Eat small portions of fat and protein.** Only limited amounts of fat and protein should be eaten and balanced with available carbohydrates as it is impossible to metabolise them. When the body breaks down protein and fat, some of the resulting components cause acidosis, which may damage the kidneys, liver, blood vessels, nerves and sensory organs.
7. **Eat enzyme-rich raw food.** The pancreatic enzymes in diabetics are depleted so it is important to include enzyme-rich food in their diets. Raw food provide enzymes for the energy nutrition utilization and are filling even in small amounts. Set aside a day in a week to consume only raw fruits or vegetables to ensure enough digestive enzymes.
8. **Reduce unnecessary stress in your life.** Shock, high stress levels, acute illnesses, accidents, holiday bingeing, worries, fear, anxiety, uncertainty, anger, excessive responsibilities—all of these can cause a sudden crisis of the diabetic's organs, particularly the heart, dramatically lowering heart function. Learn to recognize stressful situations and actively control them. In such demanding emotional times it is necessary to follow a strict diet—and to take it easy!
9. **Treat all infections immediately.** Infections, localized infections (tonsils, teeth, gallbladder) can worsen diabetes because of the increased burden they place on the body. Localized infections must be cleared and chronic constipation overcome by means of healthy nutrition. Teeth should be brushed after every meal and gums massaged. Skin must be cared for, dry-brushed and washed with alternating hot and cold water. Extreme cleanliness and foot care are important. All wounds should be disinfected and bandaged immediately. Lungs, eyes and teeth should be examined annually.
10. **Exercise regularly but don't overdo it.** Exercise and breathing are important. They increase the metabolic process and decrease the elimination of sugar in the urine. Sugar can then be better utilized. Insulin production increases because the circulation in the abdominal organs is activated. Daily outdoor activity is essential, including walking and deep breathing. Diabetics should sleep early and get up early in order to avoid fatigue! [DG](#)

Source: alive, November 2001

Exercising with Ease

If you have been diagnosed with Type 2 diabetes, you may be aware that exercise should be part of your treatment plan. Many who may be at risk of this disease are also aware that exercise may actually prevent Type 2 diabetes.



However knowing it and doing it are two different things. To start an exercise programme is hard for anyone, even harder than making dietary changes or taking medications.

Exercise takes time. At least 20 minutes daily doesn't sound like much but it may be difficult to find room to schedule time for exercise. It may be uncomfortable to put your body through unfamiliar motions and there may be some emotional discomfort if you have weight problems.

Stay Focused!

Be focused on the benefits of exercising. Type 2 diabetes is triggered by the body's resistance to insulin. Exercise raises insulin sensitivity, which will lead to better control of blood glucose. Better control means fewer diabetes-related complications. It can also mean that the time needed to take insulin is delayed or avoided completely. Exercise keeps your cardiovascular system in good shape (around 3/4 of people with Type 2 Diabetes die of heart attacks or strokes). Exercise may boost your self esteem and you will feel good about positive changes in your physical image.

Exercise can definitely relieve stress and if you're struggling with a weight problem, increased physical activity is just as important as a healthy diet.

Getting Started

How do you get started? Check with your health care provider, and have a thorough medical examination before starting a new physical activity, especially if you've been inactive for a while. Have an exercise plan based on your physical condition and needs. By doing so, you can help yourself avoid the potholes (such as low blood sugar or injuries) that can slow down or derail your programme. You'll feel more confident when you know exactly how much or how little activity you should be getting.

Goal Setting

The next step is to set some small, easy goals for yourself. Even taking a ten-minute walk around the block is a good start. When you keep your goals small and simple, you get to experience a sense of accomplishment. It's not a bad idea to keep an "exercise notebook". Sometimes seeing your progress on paper really helps.

If you've tried exercise before and didn't keep it up, try to think about the reasons why you've stopped. Were you pushing yourself too hard (perhaps without a medical examination beforehand)? Were you not pushing yourself hard enough? This can delay results, and lead to boredom and frustration.

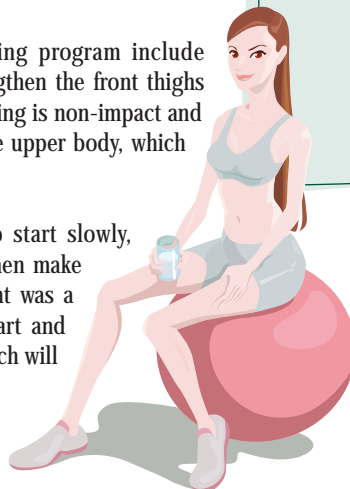
Maybe the activity you were doing was not right for you. While one person might enjoy working out with exercise equipment at home, another might crave the activity of a gym setting. You might enjoy the adrenaline rush of badminton, or prefer the slow controlled movements of tai chi.

Other exercises to add to your walking program include stationery bike cycling which can strengthen the front thighs and build leg speed for walking. Swimming is non-impact and is a good choice. It also strengthens the upper body, which may be neglected in walking.

Fitness is a journey. You may have to start slowly, endure setbacks you don't need, and then make occasional changes in what you thought was a permanent routine. However, if you start and keep going on, you'll make progress which will be very worthwhile. **DC**

A physically active lifestyle can:

- lower your blood glucose and your blood pressure
- lower your bad cholesterol and raise your good cholesterol
- improve your body's ability to use insulin
- lower your risk for heart disease and stroke
- keep your heart and bones strong
- keep your joints flexible
- lower your risk of falling
- help you lose weight
- reduce your body fat
- give you more energy
- reduce your stress



Taking control with physical activity

There cannot be enough emphasis on exercise, especially in the case of diabetes. Exercise is recommended by doctors, health experts and practitioners for everyone, and even more so for those with diabetes. Exercise in simple terms, is physical activity that keeps you fit.

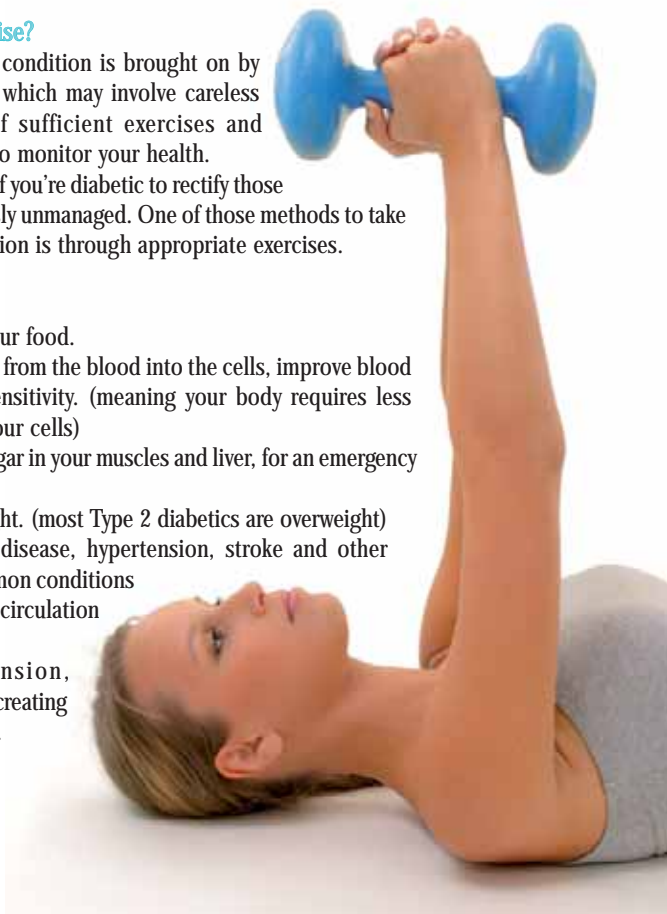
What are the benefits of exercise?

For most Type 2 diabetics, the condition is brought on by poor management of the body, which may involve careless consumption of food, lack of sufficient exercises and insufficient knowledge on how to monitor your health.

Nonetheless, there is hope even if you're diabetic to rectify those health matters that were previously unmanaged. One of those methods to take control and manage your condition is through appropriate exercises.

Exercise benefits you by:

- Getting the full value from your food.
- Helping insulin to move sugar from the blood into the cells, improve blood flow and increases insulin sensitivity. (meaning your body requires less insulin to escort sugar into your cells)
- Helping your body store up sugar in your muscles and liver, for an emergency e.g. low blood sugar.
- Helping you control your weight. (most Type 2 diabetics are overweight)
- Lowering your risk of heart disease, hypertension, stroke and other cardiovascular diseases (common conditions with diabetics) by improving circulation and oxygen utilisation.
- Reducing stress and tension, promoting relaxation, thereby creating a general sense of well-being.



One of the serious complications of diabetes mellitus is cardiovascular disease. A well-balanced meal plan and regular exercise helps reduce the risk. About 80% of Type 2 are insulin resistant; this means their insulin can't be used well, rather than they are not producing enough insulin (in fact many have excess insulin floating around in their bloodstream). Regular exercise, a controlled diet and weight loss improves insulin utilization.

What you need to know before you start exercising

There are some risks involved when exercising, however the benefits far outweigh the risks. Exercise changes the way your body reacts to insulin. Regular exercise makes your body more sensitive to insulin, however your blood sugar may get too low (hypoglycemia) after exercising. Therefore, it is important to check your blood sugar levels prior to and after exercising. If you exercise in very hot or cold conditions, the temperature changes how your body absorbs insulin. A doctor will be able to advise you on what the safe levels of your blood sugar are, prior to and after exercising.

Before you begin exercising, your doctor will:

- Determine blood sugar control.
- Perform a complete cardiovascular examination.
- Obtain an electrocardiogram (EKG) and stress test, if the patient:
 - is older than 35 years old.
 - Has been a diabetic for less than 15 years.
 - is suspected to have ischemic heart disease or cardiac autonomic neuropathy.
- Perform neurologic and ophthalmologic examination.

If you have diabetic retinopathy - abnormal growth of blood vessels on your retina - strenuous activity could lead to bleeding or retinal detachment. You may need to avoid activities such as: weightlifting or jogging. If you have reduced sensation in your feet, your doctor may recommend non-weight-bearing activities such as: swimming and biking.



What you need to know when you are exercising

Monitor your blood sugar

Check your blood sugar before, during and after exercise - especially if you take insulin or medications that can cause low blood sugar (hypoglycemia). Carry glucose tablets or hard candy in case your blood sugar drops too low or you feel shaky, nervous or confused.

Pay attention to your feet

Wear smooth-fitting socks and comfortable athletic shoes. Examine your feet before and after exercise for any signs of potential damage, such as cuts or blisters.

Drink up

Drink plenty of fluids while you exercise, especially when it's hot. Dehydration can increase your blood sugar. If you exercise for more than an hour, drink carbohydrate-containing beverages rather than plain water.

Know when to stop

If you experience any warning signs - severe shortness of breath, dizziness, faintness, nausea, chest pain, heart palpitations, or pain in an arm or in your jaw - stop exercising. If you don't feel better within 15 minutes, seek immediate medical help.

What you need to know about food and insulin

If you exercise more than an hour after eating, it's a good idea to have a high carbohydrate snack like fruit or a plain bagel. If you're going to do heavy exercises like running, aerobics or football, you may need more food like a sandwich with a glass of milk.

If your blood sugar is less than 100mg/dL to 120mg/dL, eat something like an apple or a glass of milk before you exercise.

If you use insulin, exercise after eating, not before. Don't exercise if your blood sugar is more than 240mg/dL. If you take pills for diabetes, test your blood sugar before and after exercising. **DC**

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Effects of GLUCOSCARE TEA

How is Glucoscare herbal tea beneficial in Type 2 Diabetes? Comprising of a blend of different herbs with the major constituents being green tea (*camelia sinensis*) and Gymnema herb, Glucoscare tea has been scientifically proven to be useful in diabetes as it has a two-fold benefit of increasing the secretion of insulin (a regulatory hormone which helps to reduce excess sugar in the blood) and reducing sugar absorption thereby proving itself useful for the weight-conscious. In herbal management, the geographic location, age, season of harvest and the active components of the herbs all play an important role in yielding the best results.



Glucoscare tea is even recommended by the Polish Diabetic Society, which states that it is a 'natural way to reduce the blood sugar level for diabetics and people who do not tolerate glucose.'

It has been found in a study conducted by King's College, London, that Gymnema extracts consisting of gymnemic acids have stimulatory effects on insulin release by increasing cell permeability, rather than by stimulating exocytosis by regulated pathways.

Using about 500 rat islets of Langerhans, the experiment showed that the extract (standardized Gymnema GS4) had stimulatory effects that differed from those of other insulin secretagogues as it was able to stimulate insulin release at temperatures as low as 4°C, whereas regulated physiological insulin secretion only occurs at temperatures in excess of 30°C.

A study was conducted by the University of Sydney, the University of Queensland and the German Institute for Physical Biology. It showed that a polypeptide extracted from the Gymnema leaf, Gurmarin, has been found to selective inhibit the neural response to sweet-taste stimuli in rats such as glucose, sucrose, glycine and saccharine without affecting responses to other taste stimuli including the taste of salty, sour or bitter items. This may lead to patients avoiding food that contains sugar, thus lowering the chances of exceeding their daily restricted sugar intake.



A toxicity test on 40 rats was conducted by SGS Healthcare and Pharmaceutical Services, in Hong Kong. There was no death or moribundity (lack of vitality) that occurred in Glucoscare Tea-treated mice after a single dose of 250g/kg body weight (equivalent to 3000 times the recommended human daily dose) was orally administered. It was concluded that it exerted no adverse toxic effect.

A randomised non-blind open label clinical study was also conducted for 3 months in the Department of Dietetics and Department of Endocrinology, Osmania General Hospital, Hyderabad. The study was on the effect of Glucoscare Herbal Tea (prepared from the standardised extract derived from *Gymnema* leaf blended with green tea) in the control of hyperglycemia and its associated complications in primary care Type 2 Diabetes Mellitus. However, more studies need to be done and it has to be documented closely in these patients over a long time with the estimation of insulin levels.

Conclusion of Glucoscare Herbal Tea Clinical Trial

The study concluded that there is/are:

- No adverse effects.
- No side effects even on using long-term
- Hope of regeneration of Beta cells (indirect evidence)
- Possibility of arrest of further destruction of residual Beta cell function
- Improvement in blood sugar values (both fasting and post-lunch)
- Improvement in Lipid parameters, glycosylated haemoglobin (HbA1c) levels and reversal of microalbuminuria
- Beneficial effects on weight control
- Improved glucose uptake by peripheral tissue
- Persistent hypoglycemic effects which are not observed on withdrawal of tea

	Tea Form	Capsule Form	Tablet Form
1	Granules dry & pick up moisture.	Hygroscopic	Hardness high. hygroscopic.
2	Convenience of rapid preparation	Ingested in dry form. Takes time for disolution.	Ingested in dry form. Takes longer time for disolution.
3	Ready solubility in water.	Slow solubility with Gelatin.	Very long time for disintegration.
4	Quicker drug release.	Slower drug release.	Very slow drug release.
5	Comfort ensures continuation with health protection.	Compliance depends on self-discipline.	Compliance depends on self-discipline.
6	Less chance for dose missing since governed by habits.	Chance of forgetting, needs conscious effort.	Chance of forgetting, needs conscious effort.
7	Convenient lifestyle comfort, perceived as an anytime drink.	Conditioned use, constantly reminded of the sickness.	Conditioned use, constantly reminded of the sickness.
8	Intact tea flavour combined with therapeutic benefits.	Sense of medication unacceptable for many.	Sense of medication unacceptable for many.
9	Ready compliance - an impulsive response for tea drinking.	A constant reminder of compulsive routine.	A constant reminder of compulsive routine.
10	Preservative free	Usually rich in preservatives.	Usually rich in preservatives.
11	No artificial color or flavour.	Capsules coloured.	Coloured for visual appeal.
12	Comfort of an home remedy	Reminder of physician's instructions.	Multiple tablets elicit dislike response.
13	Can be self administered.	May need doctor monitoring.	Need doctor monitoring.
14	Safety over prolonged use.	Safety over prolonged use.	Safety over prolonged use.
15	Purely plant origin.	Gelatin capsules have an animal source.	Would contain rich synthetic excipients.



This article was brought to you by

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Glucoscare Tea

– Control Blood Sugar the Natural Way

GlucosCare Tea or “Glucosceuticals” is a pharmaceutical-grade herbal tea and is scientifically formulated from botanical herbs like Gymnema, Camillia Sinensis (Green Tea) and other herbs for diabetics and those who are at high risk of developing diabetes.



Combining the strengths of traditional Chinese medicines, ayurvedic and other herbal medicines, GlucosCare International produces a range of herbal products that are effective in managing glucose (sugar in the blood) levels for diabetics and health-conscious people.

As a sugar-blocking health tea, it can be used to lower one’s risk of getting diabetes, and is recommended for use in Type 2 Diabetes to assist in controlling glucose levels in the blood and helps with weight loss.

A refreshing way to deal with sugar cravings

If a sweet tooth is sabotaging your diet, GlucosCare Tea is for you as it helps conquer cravings by dimming the taste of sugar, dietitians say. Nutrition researchers report that gymnemic acid resembles glucose.

Drinking a cup of GlucosCare Tea before a meal coats your tongue with the substance, tricking your taste buds into finding the taste of sugar bland. The effect lasts two to three hours, and dieters who have used it reported that it reduced their desire for sugary, fattening snacks.

Global statistics are shocking

Millions of people find out from their family physician that they have to change their lifestyles as well as take medications and blood tests for the rest of their lives. Conventional treatments help to control it but only delay its devastating effects!

Complications of diabetes include blindness, kidney failure, heart disease, nerve damage, limb amputations and even death. On top of that, prescriptive drugs can cause side effects like nausea, diarrhea, rash, weight gain, respiratory infections, liver damage and headaches.

The good news is that there is a safe and clinically-proven solution to assist in controlling blood sugar.

Gymnema along with Camillia Sinensis (Green Tea), and a healthy lifestyle, have been shown in clinical studies to be effective in Type 2 Diabetes. It is currently used in the United States as a supportive treatment for diabetes.

Gymnema is a plant used medicinally in India and Southeast Asia for treatment of “sweet urine” or what we refer to in the West as diabetes or hyperglycemia. Gymnema leaves, whether extracted or infused into a tea, suppress glucose absorption and reduce the sensation of sweetness in foods - effects which may deliver important health benefits for individuals who want to reduce blood sugar levels or body weight.

Active constituents

Plant constituents include two resins (one soluble in alcohol), gymnemic acids, tartaric acid, gurmarin, gymnemic acids, calcium oxalate, glucose, saponins, stigmaterol, quercitol and amino acid derivatives like betaine, choline and trimethylamine. Gymnema is a diuretic, astringent and tonic. It has been found to increase output and reduce blood sugar in both animal and human studies. The active components responsible for lowering glucose are the gymnemic acids.

Weight Loss

Glucoscare Herbal Tea can also reduce and alter the taste of sugar, and it does just that. By placing the herb on your tongue, or drinking the tea, the perception of sweetness is reduced or eliminated completely. That may come in handy if you want to deter binge-eating.

Warning: GlucosCare Tea should not be taken in place of insulin. It should not be used as a substitute, only as a supplement to your current therapy.

GlucosCare is supported by reputable healthcare corporate companies with well-documented clinical reference papers supporting GlucosCare tea. It is also supported by GMP (Good Manufacturing Practice) standards, made in a pharmaceutical-licensed factory and is under strict quality control in their in-house laboratory.

From the procurement of raw ingredients to the finished product, all their manufacturing processes are under strict control, keeping to the standards of the Ministry of Health.

The above healthcare information is not meant to replace professional medical consultation. Pregnant women and nursing mothers are advised to consult their doctor or pharmacist before taking any health supplement. Please note that this product is not offered as a medical treatment for diabetes, eating disorders or any other medical condition, but acts as an adjunct therapy. Please consult your doctor for the diagnosis or treatment of any such condition.



This article was brought to you by
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Complications of Diabetes

A link between Stress and Diabetes?



Diabetes is one of the so-called 'diseases of civilization', where people eat a diet of refined food, have low levels of physical activity and suffer from chronic emotional stress.

In his book "When the Body Says No: The Cost of Hidden Stress", Dr Gabor Mate says a study was made on Canada's aboriginal people. Decades ago, diabetes was virtually unheard of among the Cree population in northwestern Ontario. However, now they suffer from it at a rate five times higher than the Canadian national average.

Diabetes must have crept into the lives of the Crees because they have substituted a previous low fat diet with a high calorie one, coupled with increasingly high stress levels and low levels of physical activity.

Poor diet and lack of exercise contribute to diabetes. High calorie meals increase blood sugar while exercise helps to lower it. But does stress also play a part?

How does stress contribute?

Believe it or not, there is a relationship between our emotions and our hormones. The unity of mind and body is only controversial to people who haven't looked at the research evidence linking the emotional centre of our brain with the nervous system, the immune system, and the hormonal apparatus. When the body suffers emotional stress, it induces a gland in the brain called the hypothalamus to release substances to the pituitary gland that signals our adrenal glands to produce cortisol. These three glands - hypothalamus, pituitary, adrenal - make up the so-named HPA axis.

Among the many effects of cortisol, when chronically activated by our emotions (as they act through the HPA axis), are the elevation of blood sugar levels and the redistribution of body fat over the hips and lower abdomen. That is one way stress is responsible for diabetes.



Stress, via the HPA axis, also acts on our immune system. Stress can reduce the effectiveness of the body's immune defenses, making us more susceptible to infections or malignancy. It can also turn the immune system against the body. Furthermore, antibodies from an immune system deranged by chronic stress may cause harm to the pancreas.

Emotional stresses

Dr. Gabor Maté, a Vancouver physician said it is not enough to treat diabetes by considering physical factors alone. Besides healthy and nutritious food and regular exercise, attention should be paid to the emotional stresses that plague so many lives. These stresses may be external factors, or they may be self-generated. These stressors will have powerful physiological effects and one of the effect could be diabetes. We need to balance our lives with enough love, rest, and recreational activities so that stress does not control our existence. **DC**

1. Gabor Maté, MD, *When The Body Says No: The Cost of Hidden Stress* (Vintage Canada, 2004).



Diabetes and Kidney Failure

– An interview with Dr Kevin Tan

Kidney failure is one of the most discussed complications of diabetes, which is on the minds of many sufferers.

The kidneys' main job is to remove waste from the blood, and return the cleansed blood back to the body. Kidney failure would mean that the kidneys are no longer able to remove waste and maintain the levels of fluid and salts that the body needs. Diabetes mellitus is one of the causes of kidney failure as this condition is characterised by high blood glucose (sugar) levels. Over time the high levels of sugar in the blood damages the millions of tiny filtering units within the kidneys, which would eventually lead to kidney failure.

How does diabetes affect the kidneys?

Kidney damage is one of the micro-vascular (small blood vessel) complications of both Type 1 and Type 2 diabetes. It is the result of high blood sugar (hyperglycemia) over time, as is the case with other micro-vascular complications. At the same time, other contributing factors include high blood pressure (hypertension), especially in Type 2 diabetes. Genes also have a part to play and there are some ethnic populations which have a greater chance of developing kidney damage in diabetes. High blood sugar makes the small blood vessels leaky. Protein leak is therefore one of the early features of diabetes kidney disease. High blood pressure is carried into the individual filtering units of the kidney and this destroys them as well.

How Long will it take to get kidney failure?

Kidney failure does not occur overnight. It is a process that generally develops over years. In Type 1 diabetes, kidney damage is generally not seen within the first 3 - 5 years from diabetes diagnosis. Kidney damage or nephropathy tends to occur after 5 - 15 years from diagnosis and high blood pressure which commonly accompanies Type 2 diabetes can also accelerate kidney damage.

What is kidney failure?

Kidney failure is when the kidneys finally fail in their function to excrete waste and water, regulate salt, acid-base and water balance and manufacture a hormone (erythropoietin) to maintain blood level (hemoglobin). The treatment is then dialysis or kidney transplantation.

How many diabetes sufferers will end up with kidney failure?

The first stage is usually not controlling their blood sugar levels well enough. This starts off the process of kidney damage. If blood pressure and cholesterol are also not controlled, the problem of possible kidney damage is exacerbated, especially if the patient smokes. Not heeding the advice of health professionals does not help either.

Why do some diabetics get kidney failure while others do not?

The simple answer is that those who control their diabetes and related conditions well don't get kidney failure. However, we also know that genes play a part in ways that we cannot see and know.

How will I know if I have kidney disease?

You won't. The surest way is to have a kidney check that will check both the blood (creatinine level) and urine (protein leak or micro-albumin leak). One of the first signs is swelling of the legs which produce a depression when pressed (oedema). However, this sign may present itself late in the course of kidney damage.

What can be done once kidney disease is found?

Attempts should be made to tightly control blood sugar, blood pressure and cholesterol levels. Smoking should be stopped permanently. There are also tablets to take that will help slow down the progression. These are actually blood pressure lowering tablets in the classes of angiotensin-converting enzyme inhibitors and angiotensin-2 receptor blocker agents. At the same time, the doctor or dietitian will recommend a moderate protein diet to lower the protein load on the kidneys.

What is the prevention?

The prevention is good control of the diabetes condition, especially blood sugar and blood pressure control. It is also important to have regular surveillance for early signs of damage and this needs to be carried out at your doctor's direction. [DG](#)



Dr Kevin Tan is a Consultant diabetologist and endocrinologist in private practice at Mt Elizabeth and Mt Alvernia Medical Centres. He is also Visiting Consultant to the Diabetes Centre at Singapore General Hospital. He runs the Diabetes in Pregnancy clinic at Thomson Medical Centre. Dr Kevin Tan is also currently Vice-President of the Diabetic Society of Singapore and a life-member of the Society; as well as with the Endocrine and Metabolic Society of Singapore.

Don't Go Blind From Diabetes

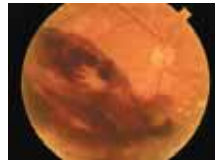
Diabetic eye disease is the leading cause of blindness in the developed countries of the world, including Singapore. With the recent rise in our diabetic population, we can expect its incidence to increase.



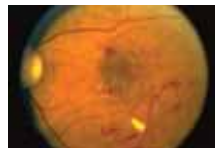
What Happens in Diabetic Eye Disease

Diabetic eye disease represents a spectrum of eye complications resulting from diabetic damage to the eye. The diabetes damages the blood vessels of the retina. This in turn causes the blood vessels to leak blood and fluid into the retina. In more severe cases of diabetic eye disease, abnormal blood vessels start to grow on the surface of the retina. These abnormal blood vessels are fragile, bleed easily and cause scarring in the eye.

The risk of developing diabetic retinopathy is high when the patient has had diabetes for several years, especially when diabetic control is poor. About 50% of patients having diabetes for 10 years or more will have some degree of diabetic retinopathy.



Diabetic
Vitreous
Hemorrhage



Diabetic
Retinopathy

Blurred Vision from Diabetic Eye Disease

In the early stage of disease, called background diabetic retinopathy, vision is not affected unless the leakage of blood and fluid happens to involve the macula. Therefore, all diabetic patients should have their eye checked once a year by an eye doctor, even if they have no visual symptoms of blurred vision.

In its more advanced stage, called proliferative diabetic retinopathy, abnormal blood vessels begin to grow on the surface of the retina. Because these vessels are fragile, they bleed easily. If the bleeding is severe, there will be sudden loss of vision. If left untreated, severe scarring occurs in the eye and blindness ensues.

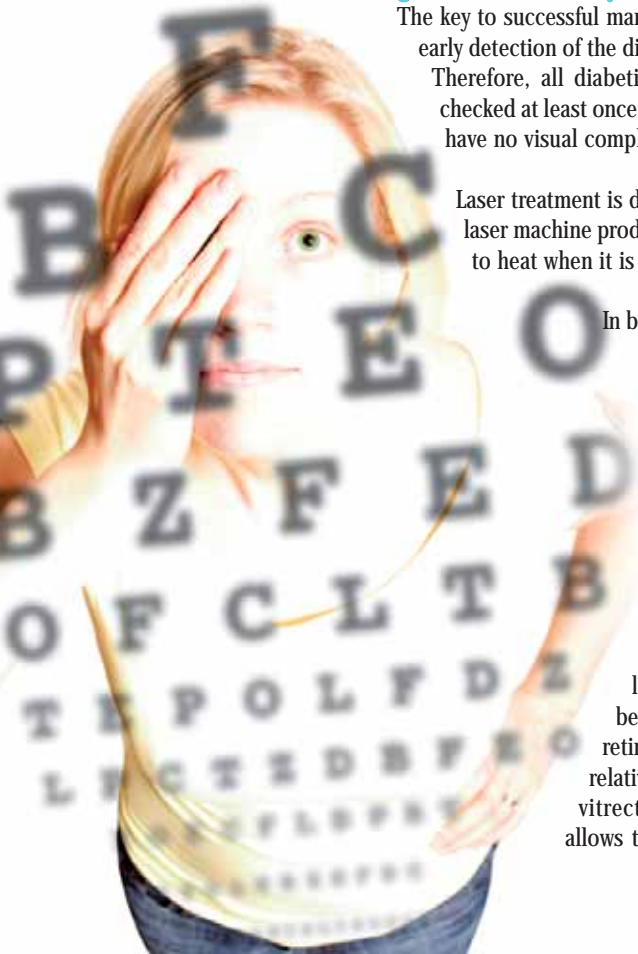
Management of Diabetic Eye Disease

The key to successful management of diabetic retinopathy is early detection of the disorder and prompt laser treatment. Therefore, all diabetic patients should have their eyes checked at least once a year by an eye doctor, even if they have no visual complaints.

Laser treatment is done with the ophthalmic laser. The laser machine produces a special light beam that turns to heat when it is focused on the retina.

In background diabetic retinopathy, the laser is used to seal the leaking blood vessels. In proliferative diabetic retinopathy, the laser is used to destroy the diseased portion of the retina to stop the growth of the abnormal new vessels.

In some patients, laser treatment cannot be used because of heavy bleeding, preventing the laser light from reaching the retina or because of excessive scarring causing retinal detachment. In these patients, a relatively new surgical procedure called vitrectomy has been developed which allows the eye surgeon to operate directly





on the retina within the eyeball itself. About 60% of these patients will have improved vision following the operation. These results are encouraging considering that in the past, vision would have been irrevocably lost.

Follow-up of patients with diabetic eye disease is life-long, even after successful laser treatment. This is because the underlying cause of the eye disease – diabetes, remains and has the potential to cause new eye problems.

Examination for Diabetic Eye Disease

Examination of the eye for diabetic eye disease requires a painless examination of the back of the eye. Eye drops are first instilled to dilate the pupils. The dilated pupil allows the doctors to examine the retina thoroughly using an instrument called the ophthalmoscope. Sometimes, to document or obtain further information about the condition, the doctor may want to photograph the retina and do an investigation called fluorescein angiography. This investigation involves injecting a yellow dye called fluorescein into the bloodstream. Photographs are then taken with a special eye camera as the dye is carried through the blood vessels of the eye. The photographs will show clearly the extent of damage to the eyes by the disease. Based on the information obtained, the doctor will be able to advise on the best management of disease.

This article was contributed by Eye Care Clinic Pte Ltd. For more information please contact 67351188



- eye problems in diabetics



1. What are the initial symptoms that diabetic patients should look out for with regards to visual health?

Early leakages and bleeding in the retina are often asymptomatic. Damage would have been done by the time the patient notices a blurring of vision.

2. What is a typical diabetic consultation at your clinic like?

An ophthalmologist can dilate the pupil and examine the retina to see if there are any early leakages or bleeding and recommend early treatment with laser if necessary. In late stages, surgery may be needed, but by this time, most patients will suffer some degree of permanent visual loss despite surgery. Early detection and treatment is therefore the key to maintaining good vision. Laser treatment is effective in preventing further deterioration of vision in most patients. Despite treatment, some patients' condition do deteriorate and may require surgery to stabilize vision.

Other visual function tests will also be performed in the doctor's clinic. Diabetic patients also run an increased risk of developing other eye complications, like earlier onset of cataracts and glaucoma.

3. Tell us how we can prevent diabetic retinopathy.

Good control of diabetes is important to prevent complications of the eye. Diabetes has detrimental effects on the eye, which worsens with increasing duration and a later time of onset. After twenty years of diabetes, 99% of those with young onset diabetics will develop diabetic retinopathy, while 60% of the older onset diabetics will develop retinopathy after the same period.

It is also important to control other co-existing diseases, like hypertension. Cessation of smoking is also important.

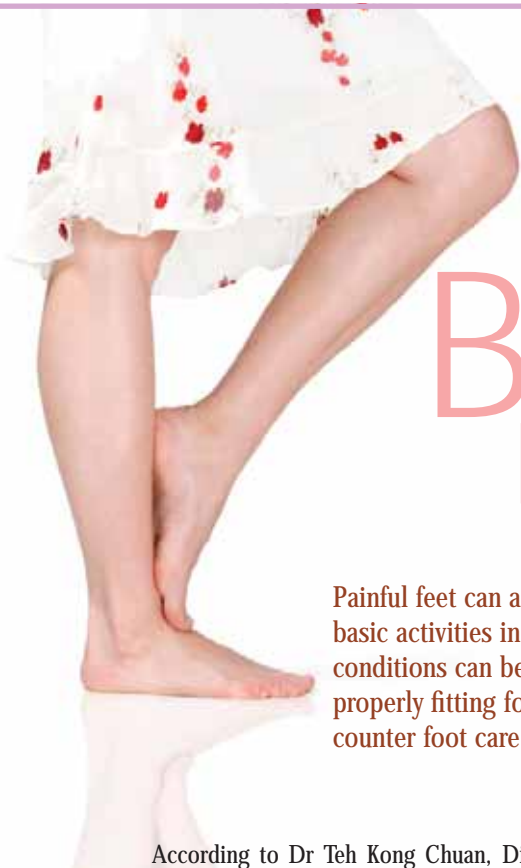
4. Why do diabetics often end up with diabetic retinopathy?

Diabetes is an ongoing disease that affects the small blood vessels in the whole body. There are many fine capillaries in the eye and early changes in these blood vessels can be seen by the doctor. These early changes are also more readily noticed by the patient themselves as their vision becomes affected. The same changes occur in other organs of the body but by the time the function of these organs is affected, the changes would have been at an advanced stage.

5. Is there a risk of permanent blindness?

Untreated, 3.6% of young onset diabetics and 1.6% of older onset diabetics become legally blind after 20 years.

Source : Interview with Dr Law Ngai Mun from The Eye Clinic
3 Mt Elizabeth Suite #11-17/18 , Mt Elizabeth Medical Centre
Singapore 225 510 Contact :- 6734 6266



Putting Your Best Foot Forward

By Mathew Thomas

Painful feet can affect our ability to enjoy the most basic activities in our daily lives. Thankfully, most foot conditions can be easily prevented or treated by wearing properly fitting footwear or using the right over-the-counter foot care products.

According to Dr Teh Kong Chuan, Director (Sports Medicine and Sports Science), Singapore Sports Council, foot hygiene is important not only to minimise “smelly feet” but to reduce the risk of infections (both bacterial and fungal). Having foot infections results in pain (and occasionally spreading of the infections to the whole body) and this would affect most sports activities which involve running.

Athlete’s Foot is a fungal infection also known as Tinea Pedis. Other infections can also affect the foot (including bacterial and viral infections). Moist conditions are excellent breeding grounds for fungal infections like Athlete’s Foot. Fungi can thrive in warm and damp areas such as gyms, locker rooms and common showers. As athletes spend a great deal of time in such environments, they are at a higher risk of fungal infection.

Some conditions can also mimic athlete’s foot e.g. allergic skin reactions (to the socks or footwear). Some of the symptoms to look out for would be red, dry, flaking skin, sometimes accompanied by pain or itching. The condition usually occurs between the toes or on the soles or sides of the feet. Often, athlete’s foot is mistaken for dry and cracked feet.



Treatment and Preventive Measures

Proper foot hygiene can prevent Athlete's Foot as well as other common foot conditions. Daily washing of the feet with soap and water followed by thorough drying, especially between the toes, is important.

It is important to wear shoes and socks that are dry. Foot powder also helps to keep the foot dry and infection-free. It is a good idea to air your shoes after prolonged use. This is especially true when you participate in long hikes, walks or runs. The habit of changing your socks regularly will improve the well-being of your feet.

Dr Teh added that in order to maintain a good pair of feet, you should:

1. Keep the feet clean and dry. Dusting with powder helps keep them dry. Socks should be changed daily.
2. Avoid prolonged wear of closed-up footwear (shoes, boots).
3. Do not share shoes/socks (some people are more resistant to symptoms, though they may be carrying the Tinea fungus on their bodies) and
4. Ensure that shower/dressing rooms shared by many people are kept clean and are disinfected regularly.

More Footcare Tips for Diabetics

• Skin Care

The diabetic's skin may become very dry and rough. Use a moisturising cream every night to avoid dry skin. Cream will keep the skin smooth and elastic and help prevent knocks and scrapes. Apply cream to the top and the bottom of the feet. Avoid the spaces in between the toes.

• Inspection

Check your feet every day. Danger signs to look out for include cuts, blisters, abrasions, hard skin (corns and calluses) and changes in colour.

• Minor Wounds

Keep a well-stocked First Aid kit. Attend to lesions immediately. If the wound looks any worse or is slow to heal, consult your doctor immediately.

• Nail Care

Trim your nails after bathing when they are soft. Use clippers-less likely to cut the skin. Cut your nails straight across and then file the corners gently. Digging into the corners may cause ingrown nails or introduce infection. If eyesight is poor, enlist a family member to assist. Regular filing may eliminate the need for cutting your nails.



Fungal infections can be stubborn and difficult to treat, however, if diagnosed and treated promptly by your family doctor, the problem can be eradicated before chronic problems set in. Fungal infections cannot thrive in an oxygen-rich environment. Thus, if you follow the

above-mentioned steps, you can almost be certain of having a good infection-free pair of feet.

For People with Diabetes

In Singapore, approximately 10% of adult Singaporeans are known diabetics. Any foot condition is of special concern to diabetics as they are more susceptible to developing infections that can lead to serious medical problems.

Healthy Times spoke to Mr. Adam Jorgensen, a Podiatrist from The Foot Practice, Camden Medical Centre.

Why do people with diabetes develop foot infections?

AJ: A few reasons. One is that their immune response which is responsible for fighting infections does not function as well as non-diabetics. Two, diabetics are more prone to developing wounds which then offer a portal of entry for infections. This is mostly due to

• Footwear

Wear footwear at all times. This protection is essential for those who have numbness in their feet. Slippers do not provide adequate protection for the toes and the heels. Sports shoes are ideal for the diabetic because they have soft lining, good support, extra cushioning, extra depth and are secured to the ankle with a lace or a strap. Check the shoes for excessive wear and tear. Check inside the shoes and shake them out before wearing. Cotton socks should be worn and changed regularly. This will help absorb excess moisture.

• Fitting

It is important to fit shoes correctly to prevent abrasions from ill-fitting footwear. Allow plenty of space at the toes. The width of the shoes should be as wide as your foot.

• Screening

It is important to have your feet screened for major complications every year by your podiatrist or doctor.

Source: The Foot Practice, Camden Medical Centre



the development of numbness in the feet in particular. They have difficulty protecting themselves. A third reason is diabetics often develop other health problems, such as poor circulation, which affects the ability to fight infections.

Any foot care tips for diabetics?

AJ: First and foremost, control your diabetes. Bathe feet daily using a mild soap. Dry the feet well after bathing. Pay particular attention between the toes. Do not use talcum powder. It tends to adhere to moist areas and causes abrasions.

What are some of the serious medical problems a person with diabetes can face if he/she has a fungal infection like Athlete's Foot?

AJ: Fungal infections like athlete's foot are very common in the community. These bacterial infections are obviously more serious in those with diabetes for the previously mentioned reasons. Generally, these infections remain superficial and cause little problems other than irritation and discomfort. However, if a fungal infection is left untreated and or is exacerbated by poor hygiene, fungal infections can spread, not just to other areas of the body but also to other people in close contact. Worse still, the fungal infection breaks the skin's protective barrier which then allows for more serious bacterial infections to enter the skin and invade, ultimately causing limb or life-threatening infections. **DG**

Thanks to:

Dr Teh Kong Chuan, Director (Sports Medicine and Sports Science), Singapore Sports Council, and Mr Adam Jorgensen, Podiatrist, The Foot Practice. Mr Jorgensen's clinic is located at Unit 10-04A, Camden Medical Centre, 1 Orchard Boulevard. Tel: (65) 68364515

This article was printed in Healthy Times October 2005 issue

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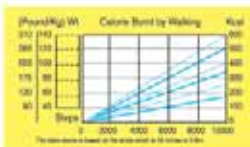
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The **STEPCOUNTER** is a compact gadget that counts the number of steps you take. Determine how many steps you take a day by wearing one during the course of a normal day. Then add 20 per cent on that number to achieve. If you're embarking on an aggressive weight loss program, you may wish to set your target as high as 14,000 steps a day.



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What is Metabolic Syndrome?



Metabolic Syndrome has been around since the early 20th century. Back then, it was known that high blood pressure, diabetes, obesity and increased levels of fats in the blood were associated with an increased risk of heart disease. However, doctors began to notice that when a person had one or more of these disorders, it was more likely that he would show signs of the others.

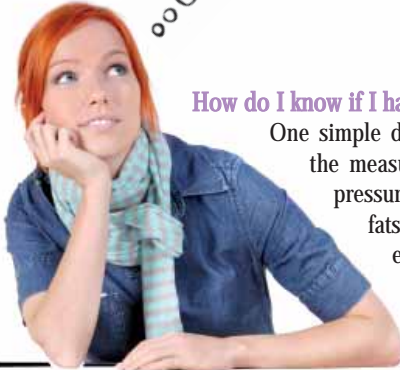
Over the years, the term ‘Metabolic Syndrome’ has evolved as a term to describe people who have several of these abnormalities at the same time.

Why is it important?

It is important because people with Metabolic Syndrome are more likely to develop diabetes and heart disease which are common chronic diseases in our population. These diseases cause significant health problems to those affected. For example, diabetes is the most common cause of blindness and kidney failure in Singapore, while heart disease is the second most common cause of death in our population. Unfortunately, once diabetes and heart disease occur, there is no cure. At present, doctors can only treat by trying to control the disease and minimize its effects. The only way to really avoid the complications of these diseases is to prevent diabetes and heart disease from occurring in the first place.

To do this, we need to know who is at risk of developing diabetes and heart disease. This is where Metabolic Syndrome comes in, as its manifestation can be regarded as a tool for identifying people at risk of diabetes and heart disease so that steps can be taken to prevent these disease from ever occurring.

“People with Metabolic Syndrome are more likely to develop diabetes and heart disease.”



How do I know if I have Metabolic Syndrome?

One simple definition that can be easily applied involves the measurement of your waist circumference, blood pressure, blood sugar and the level of cholesterol and fats in your blood. These are tests that can be done easily in your doctor's clinic. It is recommended that all Singaporeans above the age of 40 have these tests done at least once every three years.

Based on these measurements, you can look out for the following:

1. A waist circumference > 90cm if you are a man, or > 80cm if you are a woman.
2. A level of triglycerides (fats) in the blood that is > 1.7 mmol/L (150mg/dL)
3. A level of HDL (good) cholesterol that is < 1.0 mmol/L (40 mg/dL) if you are a man, or < 1.3 mmol/L (50 mg/dL) if you are a woman.
4. Blood pressure of > 130/85 mmHg, or if your doctor tells you that you have high blood pressure.
5. Blood sugar > 6.0 mmol/L (110 mg/dL)

If you have three or more out of these five features, then you have the Metabolic Syndrome.

Why do we use the Waist Circumference instead of the Body Mass Index to tell if we are overweight in metabolic syndrome?

The body mass index is a good way to determine whether you are overweight and can be used to define metabolic syndrome. It was found that the presence of abdominal fat poses a greater risk for diabetes and heart disease than fat deposited elsewhere (for example, the hips or legs). Concisely, a person with more fat around the middle is at greater risk than a person with more fat elsewhere. For this reason, most definitions of metabolic syndrome use the waist circumference instead of body mass index.

What causes metabolic syndrome?

This is not very clear at the moment. However, being overweight seems significant as metabolic syndrome is more common in overweight people.

So what if I Have Metabolic Syndrome?

Not everyone with this condition will develop diabetes or heart disease eventually. Furthermore, there are many things that you can do to prevent these disorders. Therefore, you should take it as an opportunity to do something active for the future.

Since being overweight is a major risk factor, managing one's weight is possibly the most important thing we can do for ourselves. Research has shown that even in people who do not lose weight, but maintain their weight at a constant level as they get older, are at a lower risk of developing diabetes.

“Not everyone with Metabolic Syndrome will develop diabetes or heart disease.”

Once we reach adulthood, how much we weigh is determined by how much energy goes into our body (through the food we eat) and how much we burn off (through physical activity). Successful weight loss can only occur if we burn off more than our energy intake. For these reasons, diet and exercise are the two cornerstones of treatment in Metabolic Syndrome. A dietitian or a nutritionist can help you create a meal plan that works for you - ask your doctor for a referral. Make the commitment to exercise just as you would for any other important appointment, and choose an exercise that you enjoy.

Finding a partner to exercise with will allow you to help support each other and strengthen your collective resolve. Do remember that increasing your level of physical activity does not necessarily mean joining a health club and working out, but rather adding daily routines that can boost your level of activity, like walking the dog to taking the stairs instead of taking the elevator, or getting off one stop earlier and walking the remainder of the distance to your destination. Also, remember that before you commit yourself to a dietary or exercise programme, speak to a healthcare professional to map out a safe and effective programme.

Finally, it is also important to go back to your doctor regularly to see how you are progressing. In instances where you are unable to change your lifestyle significantly to reduce your risk, it may be appropriate to start on medications. However, medications can be expensive and may have side effects. Hence, medications should only be used after you have made a genuine attempt to modify your lifestyle.

Contributed by Dr Tai E Shyong, Consultant & Clinical Scientist
Department of Endocrinology, SGH

This article was originally published in the September 2005 issue of Heartline, Official Newsletter of the Singapore Heart Foundation

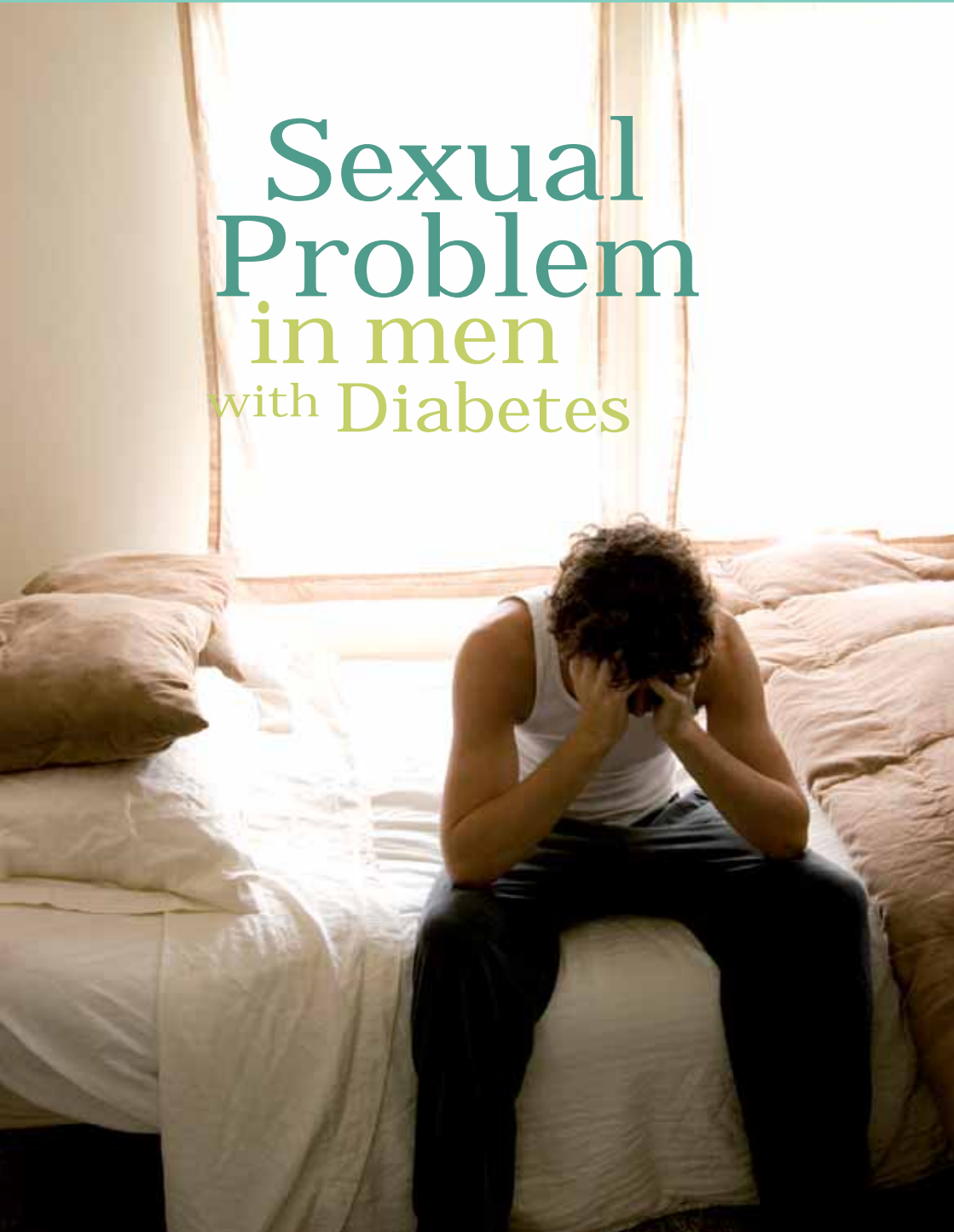
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Sex & Pregnancy



Sexual Problem in men with Diabetes





What happens if sex is suddenly removed from the marriage equation?

Four years ago, at 47, Tom lost his ability to perform sexually. Years of medications for Type 1 diabetes and poor blood-sugar control had combined to take away this important area of marriage. At 46, Ming no longer could have sex with her husband.

But the longer they've lived with impotency, the more they realised that they were hardly alone. According to Mayo Clinic statistics, more than half of men aged 50 and older with diabetes experience some degree of erectile dysfunction.

Other diseases that can affect performance include prostate cancer and nerve disorders such as Parkinson's, Alzheimer's, and multiple sclerosis.

Although these sexual health problems can be fairly common among people with diabetes, they are often not widely discussed. The good news is that often there are treatments that can help you if you are suffering from diabetes-related sex problems.

Sexual problems in men with diabetes

There are a few reasons why men with diabetes may suffer from sexual problems. Some of these problems are no different from those that the general male population might have.

The causes of sexual problems in men with diabetes can be broadly divided into:

- problems with erections due to damage to nerves or blood vessels supplying blood to the penis;
- problems with erections due to poor blood sugar control; and
- problems with erections due to stress or fear of not being able to achieve an erection.

Erectile Dysfunction

Erectile dysfunction, also called erectile failure or impotence is a common problem around the world. Erectile dysfunction is the consistent inability of a man to attain or sustain an erection for satisfactory intercourse to take place.

Unfortunately, diabetes is one of the more common causes of this condition.

Erectile dysfunction is not a disease in itself but a symptom or side effect of other problems. The bad news is that approximately 60 to 70% of diabetic men aged over 50 have some degree of impotence. The good news is that clinical research has clearly demonstrated that with good long-term glucose control and a healthy lifestyle, the disorder may be less severe or avoided completely in many diabetic men.



A recent clinical study revealed that 5 percent of the men with erectile dysfunction also had undiagnosed diabetes.¹

Men who have diabetes are three times more likely to have erectile dysfunction than men who do not have diabetes. Among men with erectile dysfunction, those with diabetes are likely to have experienced the problem as much as 10 to 15 years earlier than men without diabetes.

In addition to diabetes, other major causes of erectile dysfunction include high blood pressure, kidney disease, alcoholism, and blood vessel disease. Erectile dysfunction may also occur because of the side effects of medications, psychological factors, smoking, and hormonal deficiencies.

Nerve and blood vessel damage

Nerve damage, otherwise known as neuropathy, can come about because ongoing high blood sugar levels damage the blood vessels that bring oxygen and nutrients to the nerves. When the nerves are damaged they are not able to transmit signals properly.

If the nerves that supply the penis are damaged, the message from the brain doesn't reach the penis and it doesn't respond despite the mental stimulation. You may also suffer from ejaculation problems related to the nerve damage.

Poor blood sugar control

As well as causing neuropathy, another mechanism by which poor blood sugar control can affect erections is by holding back production of nitric oxide. Nitric oxide is a body chemical necessary for erections, which is released in the penis.

High blood sugar can also cause a reduction in libido, or sex drive. Bringing blood glucose back under control again may sometimes restore a man's sex drive.

Stress and fear of failure

A couple of episodes of not being able to perform sexually may be enough to cause a man anxiety about having sex and this can be a cause of erectile dysfunction. Similarly, stress in a man's life and other psychological factors, such as depression, can also cause erectile dysfunction. So, it's often a combination of physical and psychological causes. Erectile dysfunction that starts off having a physical cause can often acquire a psychological component to it as a man becomes worried about his performance.



Treatment

There are many effective treatment strategies to increase a man's ability to achieve an erection and to restore sexual relations.

Treatments for erectile dysfunction caused by nerve damage, also called neuropathy, vary widely and range from oral pills, a vacuum pump, pellets placed in the urethra, and shots directly into the penis, to surgery. All these methods have strengths and drawbacks. Psychotherapy to reduce anxiety or address other issues may be necessary. Surgery to implant a device to aid in erection or to repair arteries is another option.

Retrograde Ejaculation

Retrograde ejaculation is a condition in which part or all of a man's semen goes into the bladder instead of out the penis during ejaculation. Retrograde ejaculation occurs when internal muscles, called sphincters, do not function normally. A sphincter automatically opens or closes a passage in the body. The semen mixes with urine in the bladder and leaves the body during urination, without harming the bladder. A man experiencing retrograde ejaculation may notice that little semen is discharged during ejaculation. His urine may appear cloudy and an analysis of a urine sample after ejaculation will reveal the presence of semen.

Poor blood glucose control and the resulting nerve damage are associated with retrograde ejaculation. Other causes include prostate surgery or some blood pressure medicines.

Retrograde ejaculation caused by diabetes or surgery may be improved with a medication that improves the muscle tone of the bladder neck. [DC](#)

* Names have been changed

1. Sairam K, Kulinskaya E, Boustead GB, Hanbury DC, McNicholas TA. Prevalence of undiagnosed diabetes mellitus in male erectile dysfunction. *BJU International*. 2001;88(1):68-71.

A photograph of a woman with blonde, wavy hair lying in bed. She is wearing a pink hospital gown and is partially covered by a white blanket. Her eyes are closed, and she has a thoughtful or perhaps sad expression. Her right arm is raised and resting on a white pillow behind her head. The background is a plain, light-colored wall.

Sexual Problems
in women
with *diabetes*

The sex problems experienced by some women with diabetes may be the same problems that may be experienced by women without diabetes. They are:

- lack of vaginal lubrication
- painful intercourse; and
- loss of desire — reduced libido

Just like other women, some women with diabetes may suffer problems with orgasm, but some research shows that if you have diabetes you are no more likely to have these problems than women who don't have diabetes. If you are having sexual problems that may or may not be related to your diabetes, see your doctor — there may be some simple things you can do to improve the situation.

Lack of lubrication

Dryness of the vagina, due to a lack of lubrication or slow lubrication, can lead to painful intercourse for women. It is thought that nerve and blood vessel damaged in diabetes contributes to this effect. The problem is easily remedied by using a water-soluble personal lubricant, which should provide relief from discomfort during sex.

Oestrogen creams or pessaries are sometimes prescribed to women going through menopause or who have had menopause, because the body slows down its production of oestrogen during and after menopause, leading to vaginal dryness. Your doctor will be able to advise you on the most suitable option.

Painful sex

Pain during sex can be due to yeast infections (thrush) as well as vaginal dryness. Women who suffer from poor blood glucose control are more susceptible to vaginal yeast infections, because the yeasts flourish in high sugar environments.

Thrush can be treated with antifungal creams or vaginal pessaries. If you get recurrent thrush infections, it may be that your partner is carrying the yeast and re-infecting you during sex. If this is the case your partner will need to be treated as well.

Loss of desire

Losing interest in sex is not the sole domain of women with diabetes. Decreased sexual desire can be due to many factors, but one which does relate to women with diabetes is widely-fluctuating blood glucose levels. Poor control of blood glucose can lead to tiredness and a lack of interest in sex. Bringing blood glucose control back under control may help restore desire.



Treatments

Talk to your doctor if you experience sexual problems or notice a change in your sexual response. A physical exam and laboratory tests may also help pinpoint causes. Your blood glucose control will be discussed. The doctor may ask whether you might be pregnant or have reached menopause and whether you are depressed or have recently experienced upsetting changes in your life.

Prescription or over-the-counter vaginal lubricant creams may be useful for women experiencing dryness.

Techniques to treat decreased sexual response include changes in position and stimulation during sexual relations.

Psychological counseling, as well as Kegel exercises to strengthen the muscles that hold urine in the bladder, may be helpful.

Diabetes and Urologic Problems

Diabetes can damage the nerves that control bladder function thus bladder dysfunction can have a profound effect on quality of life. Men and women with diabetes commonly have bladder symptoms that may include a feeling of urinary urgency, frequency, getting up at night to urinate often, or leakage of urine (incontinence). These symptoms have been called overactive bladder. Less common but more severe bladder symptoms include difficulty urinating and complete failure to empty (retention). These symptoms are called a neurogenic bladder. Some evidence indicates that this problem occurs in both men and women with diabetes at earlier ages than in those without diabetes.

Neurogenic Bladder

What is neurogenic bladder? Neurogenic bladder can be caused by diabetes or other diseases, accidents that damage the nerves, or infections. Damage to the nerves that go to your bladder can cause it to release urine when you do not intend to urinate, resulting in leakage. Or damage to nerves may prevent your bladder from releasing urine properly and it may be forced back into the kidneys, causing kidney damage or urinary tract infections.

Symptoms of neurogenic bladder include

- urinary tract infections
- loss of the urge to urinate when the bladder is full
- leakage of urine
- inability to empty the bladder

Your doctor will check both your nervous system (your brain and the nerves of the bladder) and the bladder itself. Tests may include x-rays and an evaluation of bladder function (urodynamics).

Treatment for neurogenic bladder depends on the specific problem and its cause. If the main problem is retention of urine in the bladder, treatment may involve

Remember

The nerve damage of diabetes may cause sexual or urologic problems.

- **Sexual problems for men with diabetes include**
 - erectile dysfunction
 - retrograde ejaculation
- **Sexual problems for women with diabetes include**
 - decreased vaginal lubrication
 - decreased sexual response
- **Urologic problems for men and women with diabetes include**
 - neurogenic bladder
 - urinary tract infections
- **Controlling diabetes through diet and exercise** can help prevent sexual and urologic problems. **Treatment is available** for sexual and urologic problems.



medication to promote better bladder emptying and behavior changes to promote more efficient urination, called timed urination. Occasionally, a thin tube called a catheter through the urethra is inserted into the bladder to drain the urine. Learning how to tell when the bladder is full and how to massage the lower abdomen to fully empty the bladder can help as well. If urinary leakage is the main problem, medications or surgery can help.

Urinary Tract Infections

Infections can occur in any part of the urinary tract. They are caused when bacteria, usually from the digestive system, reach the urinary tract. If bacteria are growing in the urethra, the infection is called urethritis. The bacteria may travel up the urinary tract and cause a bladder infection, called cystitis. An untreated infection may go farther into the body and cause pyelonephritis, a kidney infection. Some people have chronic or recurrent urinary tract infections.

Symptoms of urinary tract infections may include

- a frequent urge to urinate
- pain or burning in the bladder or urethra during urination
- cloudy or reddish urine
- fatigue or shakiness
- in women, pressure above the pubic bone
- in men, a feeling of fullness in the rectum **DG**





Diabetes & Pregnancy

In the past, pregnancy was riskier for women with diabetes. Today, with good medical care and rigorous self-management, most women with diabetes can have a successful pregnancy and a healthy baby - provided that they pay close attention to glucose levels and work hard to keep them as close as normal as possible even before conception. That's because hyperglycemia can increase the risk of a miscarriage or of birth defects in the baby. When women maintained strict blood glucose control prior to conceiving and during the first trimester, the incidence of malformations was much lower than in women with diabetes who did not.

Types of Diabetes in Pregnancy

There are three main types of diabetic pregnancies :-

1. Mothers with Type 1 (insulin dependent) diabetes
2. Mothers with Type 2 (non-insulin dependent) diabetes
3. Mothers with gestational diabetes diagnosed during pregnancy. This usually occurs between the 24th and 28th week of pregnancy.

How Diabetes affects your baby

- The size of the baby may be bigger, which may cause more difficulty during labour. Delivery by Caesarian may be necessary.
- Baby may develop hypoglycemia (low blood sugar) after delivery
- Baby may develop jaundice (yellowing of skin)
- Baby may have difficulty breathing

Planning for a baby

Whatever the type of diabetes, it is very important to achieve good diabetic control before you plan to have a baby. Your doctor and his diabetes care team will be in a better position to help you plan for a safe pregnancy.

During Pregnancy

Insulin is the only form of treatment that is recommended during pregnancy. Therefore, the dose may be changed quite often, usually increased to a maximum of 4 times daily, to cope with the way your body deals with excess sugar.

- Measure your blood sugar level before meals, at bedtime, and 2 hours after eating according to your doctor or diabetes care team's instructions. Let your doctor know if there are unusual readings.
- Control your diet. Refrain from unnecessary food. It may help to take frequent but small meals e.g. breakfast, mid-morning snack, lunch, mid-afternoon snack, dinner, mid-evening snack and bedtime snack
- Exercise regularly e.g. swimming or walking
- Inject your insulin as prescribed by your doctor

For Type 1 Diabetics

You may need a further increase of insulin during the 3rd month of the pregnancy due to the change in amount of hormone produced. As such your insulin dose may need to be changed quite often.

For a tighter control of your blood sugar level, your doctor may advise you to change your insulin regimen (type of insulin to use and when).





For Type 2 Diabetics

Anti-diabetes tablets which are commonly given, are harmful to your baby. The doctor will switch to insulin injections instead.

Gestational Diabetes

Diabetes in pregnancy usually appears in the 2nd or 3rd trimester. Diet alone may give good control of blood sugar levels. Have a dietitian help you to plan your meals. This form of diabetes will go away after delivery, but may recur during subsequent pregnancies. Some women may even develop overt diabetes mellitus.

After Pregnancy

Your blood sugar levels may have wide fluctuations i.e. changing between very low and high levels. It may take a few weeks before the level stabilizes within a smaller range. Your doctor will help you to resume your usual insulin dosage or oral medication. During this time, continue to test your blood sugar level a few times daily. Continue to balance your meals, insulin dosage and exercise well.

Remember - Postnatal Visits

Do not miss your postnatal visit to your doctor. It is important as he will advise you on your type of diabetes and how to manage it well. You may also discuss future family plans with regards to you and your child

Breastfeeding

You should be able to breastfeed if you are not taking oral tablets for control of diabetes. Try to time your meals and snacks about half to one hour before breastfeeding. However, you need to be careful with the following;

- Cracked nipples and breast infections.
- Hypoglycemia (low level blood sugar) There is a need to increase the carbohydrate content in your diet.
- High sugar content in the breast milk due to high levels of blood sugar in the mother

Your Baby

The baby may not grow up to suffer from diabetes despite having a diabetic mother. He will be observed by the doctor who may want the baby to be transferred to a special care unit if needed. Insulin is safe for use in pregnancy and breastfeeding, so there should be no problems. [DG](#)

References :

- Diabetes in Pregnancy, National Healthcare Group, Singapore dated 29th May 2006
- Article contributed by Changi General Hospital.





- Endocrinology: diabetes and pregnancy



1. If I have diabetes and wish to get pregnant, is there anything I need to do or pay attention to for my condition?

Yes, the first thing you should do is to speak to your doctor who is monitoring your diabetes and inform him/her that you would like to get pregnant. It may be best to see an endocrinologist (diabetes specialist) in this case.

Before planning for pregnancy, you need to have very good diabetes control to minimise the risk of birth defects of your baby. There is a direct correlation between the glucose level of your blood and the risk of birth defects of your baby. If you are taking tablets for your diabetes, the doctor will decide whether to convert your medication to insulin before you plan for pregnancy. In addition, he will need to check for diabetes complications as pregnancy may worsen some of the complications.

2. As a diabetic, what do I have to do to stay healthy when I am pregnant?

You will need to follow the advice of your Obstetrician and Gynaecologist (O&G) doctor, diabetes doctor and dietician as they will advise on your diet and

medication. During your pregnancy, you need to monitor your home glucose more frequently and may be required to take insulin.

3. If I have some complications during pregnancy as a result of my diabetes, is there anything that can be done?

If you have diabetes, you are at higher risks for a condition called pre-eclampsia which is a form of hypertension in pregnancy. Your doctors will monitor you closely and if you develop pre-eclampsia, you may need to deliver your baby earlier.

4. Will my diabetes affect my baby?

If you have diabetes during pregnancy, it can affect your baby in a number of ways. This is especially so if your diabetes is poorly controlled during your pregnancy.

- a) Your baby may grow too large. This can cause problems during delivery
- b) Your baby's blood glucose may be too low at birth
- c) Your baby may have difficulty breathing
- d) Your baby may have low levels of calcium and magnesium

All of these risks are minimised if you can achieve good glucose control during your pregnancy. [DC](#)

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The information provided above is of a general nature and is intended to provide health information to the general public. This information should not be treated as a replacement for medical advice. You should seek consultation from a medical or healthcare professional about your specific medical condition



Others

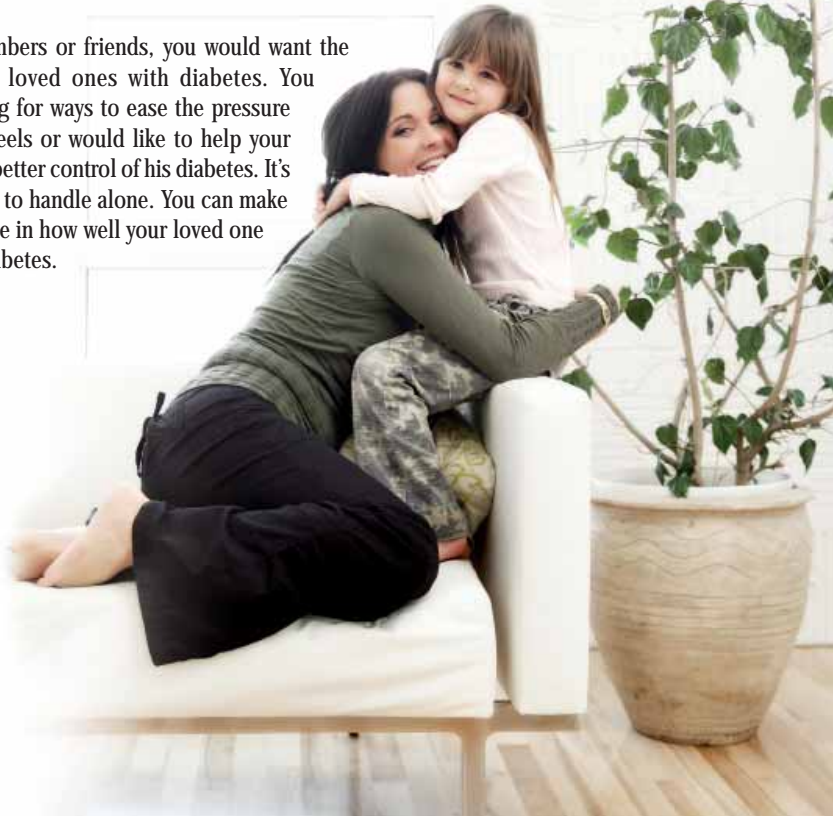


Make a difference!

Diabetes is tough

When your loved ones have diabetes, they need to eat healthy food, stay active, control their weight, take their medicine, and check their blood glucose (sugar) on top of handling all the other things in life! No wonder people with diabetes can feel stressed out and afraid.

As family members or friends, you would want the best for your loved ones with diabetes. You may be looking for ways to ease the pressure your mother feels or would like to help your husband take better control of his diabetes. It's a hard disease to handle alone. You can make a big difference in how well your loved one copes with diabetes.



Here are seven ways to support someone you love

1. PARTICIPATE. Learn about diabetes.

With treatment changing all the time, we are learning more every day. You can use what you learn to help your loved one.

Attend a class.

Surf the Internet.

Ask the doctor or nurse how you can learn more.

2. SUPPORT. Understand your loved one's diabetes.

Each person's experience with diabetes is different. What things are hard for your friend to manage? What things are easy? At the other extreme, don't make it easy for your loved one to lose control over their diabetes management by stocking the junk food supply they asked for, agreeing to let them skip their blood glucose check, or by making excuses for their lack of interest in their own care. Let them know that you're there for them, but you won't assist them in sabotaging their health.

3. COMMUNICATE. Find out what your loved one needs.

Try asking these three questions.

What can I do that can help you with your diabetes?

What can I do that can make it easier for you to manage your diabetes?

What can I do to help you more than I do now?

4. BE GOOD TO YOURSELF. Talk about your feelings.

Diabetes affects you, too. Telling your loved one how you feel can help both of you. You can't take care of someone else unless you take care of your own basic needs first. Get your sleep, eat right, and take time out to de-stress. If you're a parent of a child with diabetes, have a backup caregiver or babysitter for your child that is competent in diabetes care.

5. WALK THE WALK.

Exercise with your spouse. Don't nag. Encourage your loved one to be open about their needs and try not to be overly critical or judgmental. Ask what would help your loved one most. Offer to go to the doctor with your father or mother.

6. DON'T FOOD POLICE.

Don't overanalyze every bite that your loved one eats. Adults need and deserve eminent domain over their own diet. And while very young children will require your guidance for good control, older children and teens should also be given the autonomy to make food choices. What you can do is ensure that there are plenty of healthy and appropriate selections on hand to choose from.

7. TRY A NEW APPROACH.

When things aren't going right, try something new. Find one thing that works and build from there. Get help. Find a diabetes support group on the Internet. Ask your health care provider about ways to get help if your loved one is sad or depressed. **DC**

Happiness is a choice...

Hazel Nam, an 18-year-old youth shares her story of living with diabetes

“Why do I have diabetes at this age?” This is the first question I asked myself when I was diagnosed with Type 1 diabetes at 11 years old.

7 years ago, I experienced itch at some parts of my body and lost quite a lot of weight. It was my grandmother who first suspected something was wrong. Both my grandmother and mother quickly brought me to a nearby clinic for check-up and I was admitted to hospital for a complete check-up the following day.

I maintained a good and healthy lifestyle after I was discharged from the hospital for 4 years but due to peer influence and hectic school activities, I started to pay less attention to the need to maintain it. When I saw my friends taking all kinds of food and drinks, I would ask myself, “Why am I so different from others? Why do I have to inject myself everyday?” I started to miss my regular mealtimes and my exercise sessions, and furthermore, I often skipped my injections. These went on for more than a year and eventually, I was warded in the hospital due to poor glucose control.

After I was discharged from hospital, I wanted to start afresh and maintain a healthy lifestyle. Since then, I have decided that being happy is a choice, with or without diabetes. One of my friends once remarked, “You don’t look like you have any illness. You look cheerful all the time. I really admire you.” I always remind myself that I am just like any other person. I just need to do a few extra things like blood checks and injections that others do not have to do.



At the age of 16, I started to participate in events organised by TOUCH Diabetes Support (TDS), such as volunteering with *TDS Kidz Club, helping out on flag-days, etc. I have learned quite a few things from the children with diabetes. Many are disciplined in carrying out their blood checks before meals and tea breaks. They know what to eat to arrest their hypoglycemia. If you have the time, do join us in our monthly activities. I am sure you will enjoy yourself as much as I do!

Even though I have diabetes, I can still do things that others can. I was very touched by a Japanese drama programme called "1 Litre of Tears". It depicts a real story of how a 15-year-old girl who has an incurable, rare illness accepts and faces up to her condition with much courage. She treasures her life and lives on with a positive outlook even though she eventually dies at the age of 25. I realise that there are many people who are more unfortunate than me and I count my blessings and cherish my life.

I plan to take up a course on hospitality management so that I can work in the hotel industry in the future. Recently, a staff from TDS affirmed and encouraged me, "It is good that you have a dream and you are determined to pursue it". Whether or not you have diabetes, I wish you a happy and cheerful life. If you have a dream, do everything you can to fulfil it.

* TDS Kidz Club was launched in March 2002 for children with diabetes from aged 7 and above. It provides an avenue for children with diabetes to bond in community and to learn to handle their diabetes well through various creative club activities.

This article is contributed and first published in a newsletter produced by TOUCH Diabetes Support (July 2006 issue).

Enjoy The Sweetness of Life

Feeling alone and nowhere to turn to in your struggle with diabetes? TOUCH Diabetes Support can help!

Founded in 1992 to reach out to individuals and families affected by insulin-treated diabetes, TOUCH Diabetes Support provides care and support for the diabetes community. Our programmes are designed with the goal of helping them live well with diabetes.



A key feature of our service is support groups that cater to adults, youths and children with diabetes. We also provide diabetes education, lifestyle counselling, and organise camps and community events to help the public better understand diabetes.



Contrary to what some people think, diabetes is not a disability. A testimony to this fact - TOUCH Diabetes Support youths participated in two Mt Kinabalu expeditions organised for them in 2001 and 2002 as well as a 6-day adventure learning cycling expedition from Singapore to Kuantan, Malaysia in 2004.



TOUCH Diabetes Support also organised the first triathlon in 2005 and the first 'Amazing Race' in 2006 for the diabetes community in Singapore. In 2006, the TOUCH Diabetes Support youths again cycled 500 kilometres from Singapore to Cherating, Malaysia over four days.

With the official opening of TOUCH Diabetes Support Centre at Toa Payoh in November 2003, individuals and their families living with diabetes can receive further care and support. TOUCH Diabetes Support Centre is a one-stop community-based care and counselling centre for people living with diabetes.



TOUCH
Diabetes Support

TOUCH Diabetes Support

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Tel: 6252 2861 Fax: 6252 9695

HOTLINES & LINKS

DIABETIC SOCIETY OF SINGAPORE

Unit 02-12 Ang Mo Kio Community Hospital
17 Ang Mo Kio Avenue 9, Singapore 569 766
Call : 6450 6132 or 6450 6142
Email : dss@diabetes.org.sg

SOUTHWEST DIABETES EDUCATION & CARE CENTRE

Blk 528, Jurong West St. 52
#01-353 Singapore 640 528
Call : 6564 9818 or 6564 9819

CHANGI GENERAL HOSPITAL

<http://www.cgh.com.sg>
2 Simei Street 3, Singapore 529 889
Call : 6788 8833

CENTRAL SINGAPORE DIABETES EDUCATION & CARE CENTRE

Blk 22 Boon Keng Road
#01-15, Singapore 330 022
Call : 6398 0232

KIDNEY DIALYSIS FOUNDATION

Main Office : Blk 333 Kreta Ayer Road #03-33
Singapore 080 333
Tel : 6225 3133 Fax : 6225 0080
Email : enquires@kdf.org.sg
Homepage : www.kdf.org.sg

DIABETES CENTRE

Tel : 6850 2655 / 6850 2657

- Full complications and control assessment & review clinic
- Diabetes Counselling
- Lipid Profile & HbA1c testing
- Autonomic Function Tests
- Podiatry Services
- Retinal Photography

EDUCATION PROGRAMMES

Tel : 6850 1550

- Living with Diabetes
- Foot Care and Anti-Diabetes Medication

HEALTH EDUCATION CENTRE

Tel : 6850 1550

- Patient Information Leaflets
- Health Care Books

OTHER USEFUL DIABETES INFORMATION WEBSITES

American Association of Diabetes Educators
<http://www.aadenet.org>

International Diabetes Foundation
<http://www.idf.org>

American Diabetes Association
<http://www.diabetes.org>

Centre for Disease Control & Prevention
<http://cdc.gov>

Children with Diabetes on-line community
<http://www.castleweb.com/diabetes>

Diabetes-doctor's guide to internet
<http://www.pslgroup.com/diabetes.htm>

Diabetic Society of Singapore
http://home.pacific.net.sg/dss_diab

The American Dietetic Association
<http://www.eatright.org>

The Diabetes Mall
<http://www.diabetesnet.com>

World Health Organisation
<http://www.who.org>