



## DIABETES AND NERVE PROBLEMS

In Interest of Public Awareness

### WHAT IS DIABETIC NEUROPATHY?

Diabetic neuropathy is a type of nerve damage that can occur if you have diabetes. It is the most serious and common complication of diabetes. Different types of diabetic neuropathy affect different areas of the body.

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Long-term high blood sugar injures the nerves throughout the body

#### Common SYMPTOMS

Loss of sensation



Weakness (limbs)



Numbness or pain in legs



Alternating diarrhea and constipation



Erectile dysfunction



Dizziness (when standing up)



#### Types of Diabetic Neuropathy

##### Focal Neuropathy

Mostly affects head, torso and legs

##### Peripheral Neuropathy

Mostly affects legs and feet

##### Proximal Neuropathy

Mostly affects hips and thighs

##### Autonomic Neuropathy

Mostly affects digestive system, urinary system and reproductive system

#### Taking control of your DIABETIC NEUROPATHY

Visit your doctor regularly for appropriate care



Take prescribed medications



Manage your blood sugar



Regularly check your feet and extremities



Exercise regularly



Eat healthy



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## FOOT CARE IN DIABETES

### In Interest of Public Awareness

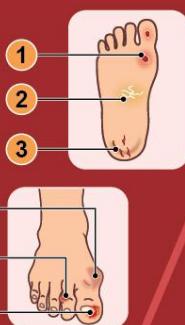
Diabetic individuals are prone to developing foot complications. Taking care of your feet is an important part of your diabetes care regime. If ignored, these complications can manifest into more serious foot problems. With uncontrolled blood sugar levels, diabetics are more likely to have ulceration and foot deformities, which may even lead to foot amputation.

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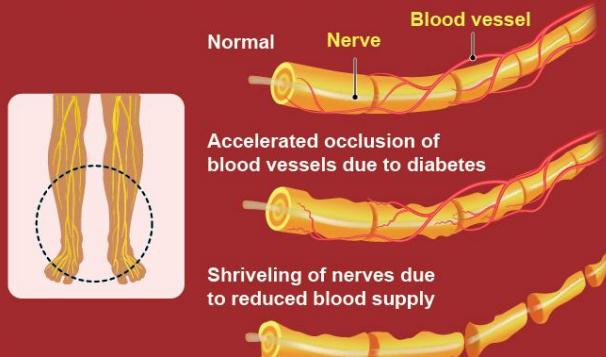
### Common diabetic FOOT PROBLEMS

- 1 Ulcer
- 2 Dry skin
- 3 Callus
- 4 Bunion
- 5 Corn (hammer toe)
- 6 Toenail infection



### Diabetes AFFECT the NERVES and BLOOD VESSELS in your FEET

- High blood sugar levels can cause nerve damage in your feet and due to this you will feel numbness or tingling sensation in your feet and over time the ability to sense will decline
- High blood sugar levels can damage blood vessels and thereby reduce blood flow
- High blood sugar levels allow bacteria to grow quickly, which will lead to rapid development and spread of infection



### Tips for FOOT CARE

Inspect your feet regularly for any problem (such as cuts, calluses, blisters, etc.). Use a mirror for better inspection



Maintain healthy blood sugar levels



Consult your diabetes care team/doctor to take good care of your feet



Wash your feet in lukewarm water; do not expose them to excessively cold or hot water



Keep your feet dry, especially between the toes



Never walk barefoot indoors or outdoors



Wear clean and soft cotton socks; shoes should fit well. Check your shoes for dirt or pebbles etc., before wearing



Moisturize your feet regularly, avoid moisturizing between the toes



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## DIABETES AND HEART DISEASE

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High blood glucose levels in diabetics can damage blood vessels and nerves. Gradually, this damage can lead to heart disease. Diabetics also tend to develop heart disease at a younger age than nondiabetics

2x more in Men  DIABETES increases risk of HEART DISEASE  4x more in Women

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Be **AWARE** of the following **RISK FACTORS**



Smoking doubles the risk of heart disease in diabetic individuals



Age >45 years

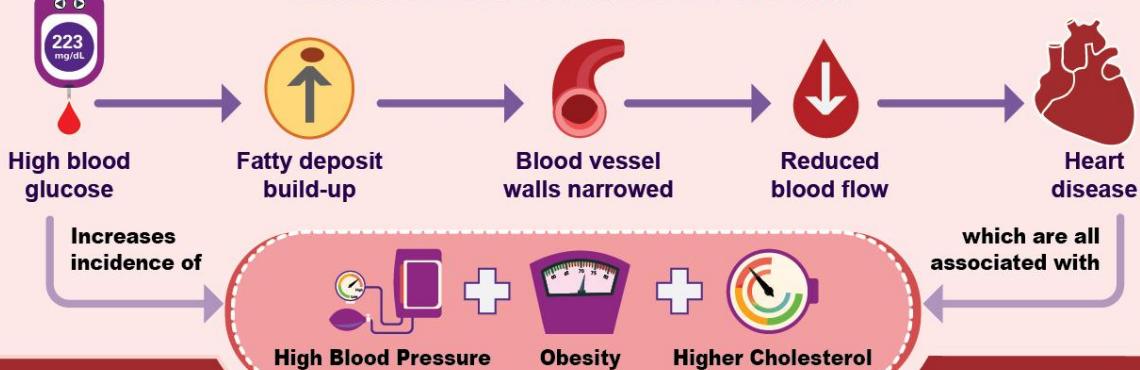
Family history of diabetes

History of diabetes during pregnancy

High cholesterol or BP levels

Obesity

### How does DIABETES AFFECT MY HEART?



What you can do to **PROTECT** your **HEART**

Take prescribed medications

Eat healthy balanced diet

Be physically active

Quit smoking and drinking



Follow **ABC's** of DIABETES by lowering

 HbA1c (measures average blood sugar levels for 3 months)

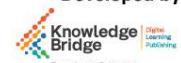
 Blood pressure

 Cholesterol

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# DIABETIC KIDNEY DISEASE

In Interest of Public Awareness

## WHAT IS DIABETIC KIDNEY DISEASE?

**A serious complication caused by poorly controlled diabetes leading to severe damage to the kidneys and resulting in reduced kidney function that can progress to kidney failure if not managed well**



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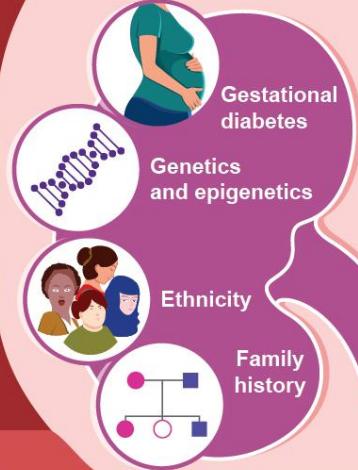
## COMMON

### SYMPTOMS

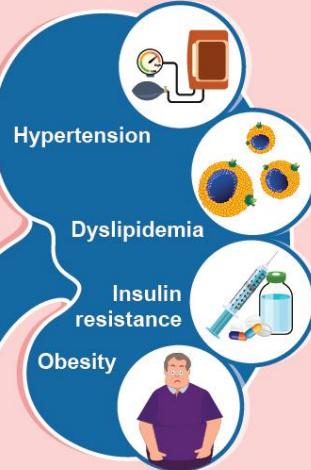
- ♦ Worsening blood pressure control
- ♦ Swelling of feet, ankles, hands or eyes
- ♦ Frequent urination
- ♦ Protein in the urine
- ♦ Loss of appetite
- ♦ Nausea and vomiting
- ♦ Shortness of breath
- ♦ Fatigue

## RISK FACTORS

### NON-MODIFIABLE



### MODIFIABLE



## HOW TO REDUCE THE RISK?

Frequent consultations with your doctor



Manage blood sugar levels



Eat healthy



No salt intake



Manage high BP or cholesterol



Quit smoking and drinking



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## DIABETES AND CHOLESTEROL

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High blood sugar levels damage the linings of the arteries of all sizes, due to which arteries are weakened and/or clogged with plaques. In atherosclerosis, walls of arteries become narrow and hardened due to fat deposition, resulting in reduced blood flow to various vital organs such as brain, heart and kidneys, etc.

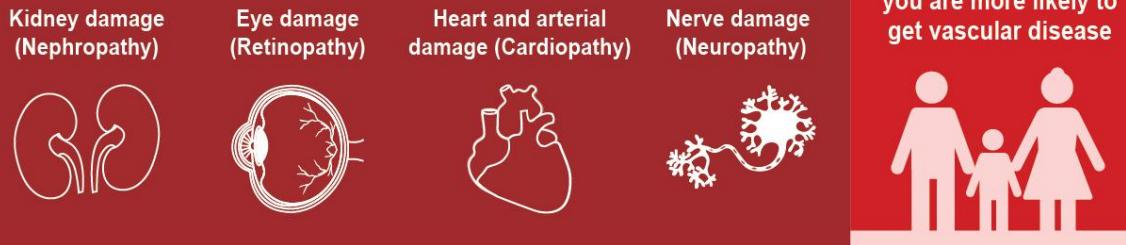
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### ATHEROSCLEROSIS Stages



**ATHEROSCLEROSIS in DIABETIC PATIENTS** can lead to



If you have a family history of diabetes you are more likely to get vascular disease



### HEALTHY LIFESTYLE CHOICES



Take medications regularly to manage your blood sugar levels, as prescribed by your doctor



Manage your sugar, cholesterol and blood pressure



Maintain a healthy weight



Be physically active



Quit tobacco

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## DIABETIC COMPLICATIONS

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High blood sugar levels over a long period of time can seriously damage blood vessels in your body. If your blood vessels aren't working properly, blood can't travel to the parts of your body it needs to, leading to damage to multiple organs such as the heart, eyes, brain and kidneys, etc.

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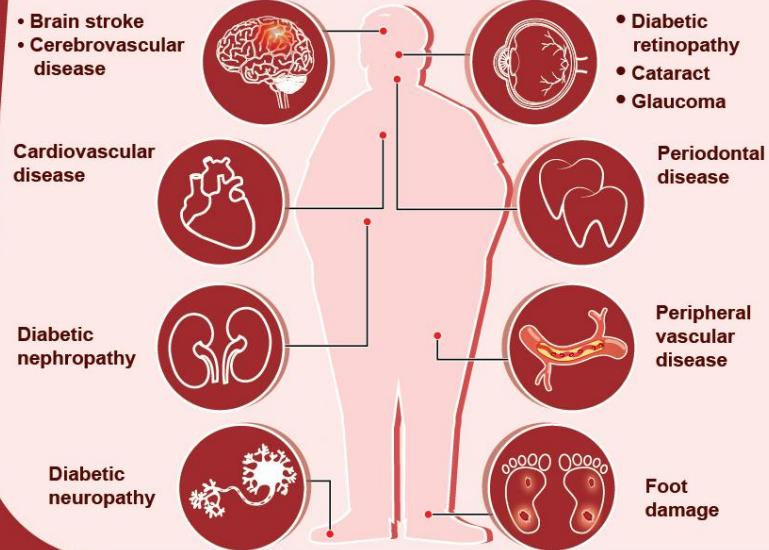
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### COMPLICATIONS

#### ACUTE

- Hypoglycemia
- Diabetic ketoacidosis
- Hyperosmolar hyperglycemic nonketotic coma

#### CHRONIC



You can take action to prevent or delay these complications of diabetes!

### HOW TO AVOID COMPLICATIONS?

Regular follow-up with doctor



Maintain ideal body weight

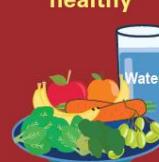


In India 30% of diabetics are overweight

Exercise regularly



Eat healthy



Control sugar and blood pressure



No salt intake



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## INTRODUCTION TO TYPE 1 DIABETES MELLITUS

In Interest of Public Awareness

### What is Type 1 Diabetes Mellitus?

Type 1 diabetes is a chronic condition in which the pancreas produces little or no insulin. Insulin is required to allow sugar (glucose) to move into cells to produce energy. Type 1 diabetes usually appears during childhood or adolescence.



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### COMMON SYMPTOMS

Increased hunger



Excessive thirst



Frequent urination



Blurred vision



Fatigue



Unintentional weight loss



- Type 1 diabetes is not caused by poor diet or lack of exercise
- Genetics and some viruses may contribute to type 1 diabetes; however, the exact causes or triggers remain unknown

### LIVING WITH TYPE 1 DIABETES

Regular monitoring, healthy diet and physical activity should be the goal. Regular checkups with the health care team for diet or insulin dosage related changes

### IT'S TREATABLE



Monitor blood glucose



Maintain a healthy diet



Regular exercise



Regular insulin injections or an insulin pump

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## INTRODUCTION TO TYPE 2 DIABETES MELLITUS

In Interest of Public Awareness

### What is Type 2 Diabetes Mellitus?

Type 2 diabetes mellitus is a long-term medical condition in which your body either does not produce enough insulin, or it resists insulin, resulting in high blood sugar levels leading to damage to multiple organs and other complications

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About 1 in 12 adults with diabetes in the world is from India

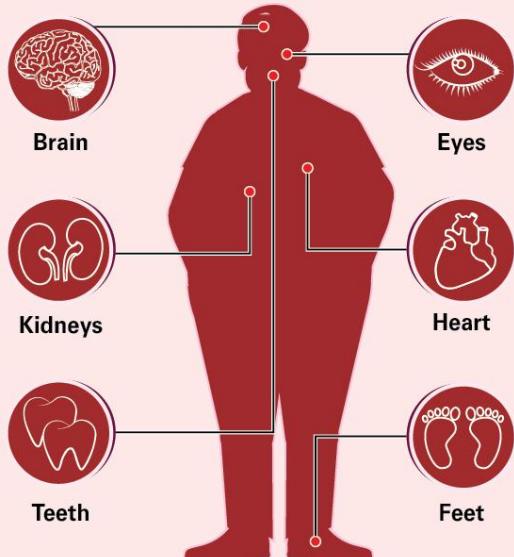


More than 74 million adults in India have diabetes

### WHAT ARE THE SYMPTOMS?



### WHAT ARE THE BODY PARTS AFFECTED BY DIABETES?



### HOW TO MANAGE YOUR DIABETES?



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## MANAGEMENT OF TYPE 2 DIABETES

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High blood sugar levels (Diabetes) can affect your whole body but they can be managed with the help of your healthcare provider and you can live a healthy and long life by taking care of yourself

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Regular physical activities like yoga and exercise

Regular physical activity



- Eat a healthy, balanced diet
- Plan your meals with carbohydrate counting

Nutrition



### DIABETES MANAGEMENT

- Safe and effective
- New delivery devices make insulin injection safer and more comfortable

- Regularly monitor your blood sugar
- Try to control your blood sugar levels within normal

Regular monitoring



- Safe and effective
- Take prescribed medications as advised by your doctor

### ■ MANAGE Your

### DIABETES Well ■



Fasting blood sugar  
Check in the morning on empty stomach



HbA1C  
Average blood sugar over 3 months



BMI  
Your weight should be appropriate in relation to your height



Cholesterol  
Manage your cholesterol within the normal limits



Blood pressure  
Normal blood pressure is  $<120/80$  mmHg. Check regularly



Post-meal blood sugar  
Check at 2 hours after a meal

### Why is Diabetes DANGEROUS?

Increased risk of heart disease or heart failure



Higher risk of stroke



Threatens vision, limbs and extremities



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## PREGNANCY AND DIABETES

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Gestational diabetes occurs during pregnancy

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### GESTATIONAL DIABETES RISK FACTORS



History of glucose intolerance



Overweight/obese



Age over 25 years



Gestational diabetes during previous pregnancy



Unhealthy diet



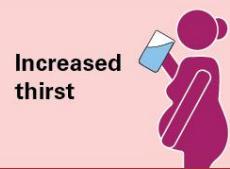
Family history of diabetes

### SYMPTOMS OF GESTATIONAL DIABETES

Increased hunger



Increased thirst



Frequent urination



Feeling tired



Blurred vision



### Can Gestational Diabetes Affect the Baby?

Yes, it can cause the following problems to the baby if not managed well



Preterm birth



Respiratory problems



Jaundice



Diabetes in future

### HOW TO CONTROL AND MANAGE?

Eat healthy diabetic food



Exercise regularly



Take medications or insulin as prescribed by your doctor



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## TYPE 2 DIABETES AND INSULIN

### In Interest of Public Awareness

Type 2 diabetes is a long-term chronic condition in which body's blood sugar (glucose) levels are high

#### Why should I use INSULIN?

As diabetes progresses, there is pancreatic  $\beta$ -cell exhaustion and oral medications tend to lose their effects because of lack of insulin production. It becomes difficult for the patients to manage their sugar levels as oral medications gradually becomes less effective. Thereby leading to the need for insulin supplementation along with oral medications

Pancreatic fatigue



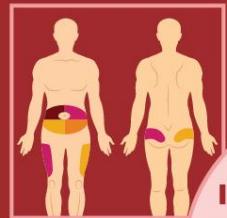
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Insulins are safe and available in many forms to suit your needs. Insulin delivery devices ensure convenience and have reduced the pain of the needle prick as finer needles are used timely and early insulin therapy is very important as it always works and decreases insulin resistance and helps in maintaining healthy blood sugar levels.



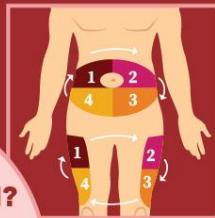
Insulin pump



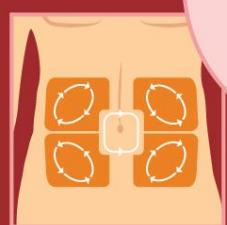
1. Choose area

#### Where to INJECT INSULIN?

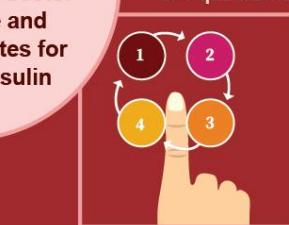
Consult your doctor for dosage and preferable sites for injecting insulin



2. Divide area in 4 quadrants



3. Select site within a quadrant and inject (use 1 quadrant/week)



4. Change position and inject almost one-finger width from your last injection

#### How to PREVENT adverse effects of DIABETES?



Eat a healthy balanced diet



Monitor blood sugar levels regularly



Exercise regularly

Take prescribed medications along with the insulin (in type 2 diabetics 1-2 doses of insulin in a day is usually enough as long-acting insulins are used which remain active for and 18-24 hours period)



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## TYPE 2 DIABETES RISK FACTORS

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**Diabetes can affect anyone; knowing the risk factors will help you identify the changes required in your lifestyle to keep your blood sugar levels in check**

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**You are more likely to develop Type 2 diabetes if you**



Have a family history of diabetes mellitus



Have abnormal blood cholesterol/lipid levels



Have a BMI >23 kg/m<sup>2</sup>



Have a history of high blood sugar during previous pregnancy



Have a sedentary lifestyle



Age more than 40 years



Have high blood pressure



Have impaired glucose tolerance or impaired fasting glucose

### DIABETES PREVENTION



Eat healthy



Exercise regularly



Quit smoking and drinking



Manage weight



Monitor blood glucose, blood pressure and cholesterol



Get your blood sugar levels checked periodically after the age of 40 years

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## DIABETES AND NUTRITION

### In Interest of Public Awareness

We get the energy for performing daily activities from the food we eat which is converted into glucose and passed on to the various body cells with the help of insulin. However, high blood glucose levels can have detrimental effects on various organs of the body. A balanced diet with a healthy meal planning play an important role in managing blood glucose levels.

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### The Way to EAT with DIABETES



#### Right carbs

Choose the right carbs that raise your blood sugar slowly



#### Timing

Timely eat healthy food and take prescribed medications



#### Know your limits

Know your calorie intake and avoid sweets, alcoholic drinks and unhealthy fats, etc.

### PORTION SIZE

In diabetics, eating the right amount of food help you manage your blood sugar levels and weight

You can use your hands as a practical guide for estimating the portion size of vegetables, carbohydrates, fats and proteins, etc.



1  
Palm = 3 ounces (84 g)



2  
Cupped hand = 1-2 ounces (28-56 g)



3  
Fist = 1 cup or a medium fruit



4  
Thumb = 2 tablespoons

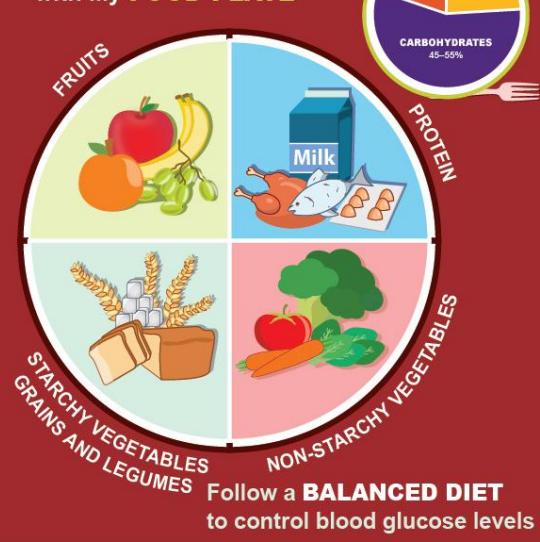


5  
Thumb tip = 1 tablespoon



6  
Fingertip = 1 teaspoon

### MANAGING DIABETES with My FOOD PLATE



### Tips to MANAGE DIABETES



Be physically active



Read food labels carefully



No added sugars, salt and solid fats

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## DIABETES INVESTIGATIONS AND BLOOD SUGAR TARGETS

In Interest of Public Awareness

### Diabetes Investigations

Your doctor will advise one or more tests to check for high blood sugar levels. Regular testing is important and is done to screen for diabetes or to monitor prediabetes or diabetes.

### WHY BLOOD SUGAR TESTING IS IMPORTANT?

To check the effects of medication



To manage high or low blood sugar levels



To modify the dose or schedule of medications, if required



To track progress of your goals



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### DIABETES TESTS

**Fasting Blood Sugar Test** measures blood glucose for 8 hours of fasting



**Postprandial Glucose Test** is done to check how your blood glucose levels respond after meals



\*Depends on the method of checking

**HbA1c\*** Test is done to check 3 months average sugar levels in the blood



**Oral Glucose Tolerance Test** is a test to check body's ability towards sugar metabolism

### THE PATH TO TYPE 2 DIABETES

#### DIABETES

#### PREDIABETES

#### NORMAL

Fasting blood sugar test

126 mg/dL or above

100–125 mg/dL

99 mg/dL or below

HbA1c test

6.5% or above

5.7–6.4%

Below 5.7%

Glucose tolerance test

200 mg/dL or above

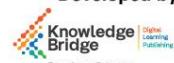
140–199 mg/dL

140 mg/dL or below

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## DIABETES PREVENTION

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**Diabetes is a chronic disorder with patients having high blood sugar levels that can lead to serious complications such as kidney failure, heart disease, etc. Diabetes can be prevented or atleast delayed by making lifestyle changes**

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### DIABETES PREVENTION

Change your lifestyle and it could be a big step toward diabetes prevention and it's never too late to start. Here are some ways to lower your risk of getting diabetes



Maintain a healthy balanced diet



Avoid too much intake of sugary, salty food and beverages



Maintain healthy BMI



Include more of whole grains, fruits and vegetables in your diet

Encourage outdoor activities



Limit screen time and other sedentary activities



Drink plenty of water. Avoid colas and juices



Increase physical activity and try to lose excess weight



Monitor blood glucose, blood pressure and cholesterol levels regularly



Get adequate sleep



Quit smoking



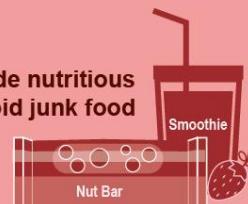
Avoid alcohol consumption



Reduce stress in your daily life

### PREVENTION TIPS FOR PARENTS

Provide nutritious snacks; avoid junk food



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## DIABETES SYMPTOMS

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Diabetes is a slowly progressing disease and the symptoms can be mild and may remain unnoticed for a long time and may get ignored.

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### SYMPTOMS OF DIABETES

Excessive hunger



Excessive thirst



Unexplained weight loss



Frequent urination



Slow healing of wounds and frequent infections



Numbness or tingling in the hands or feet



Blurring of vision



### DIABETES PREVENTION

Maintain healthy diet



Maintain ideal body weight



Increase physical activity



Quit smoking and drinking



Monitor blood glucose, blood pressure and cholesterol

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