



3

**SIMPLE STEPS  
★ TO MANAGE  
DIABETES ★**



PatientsEngage

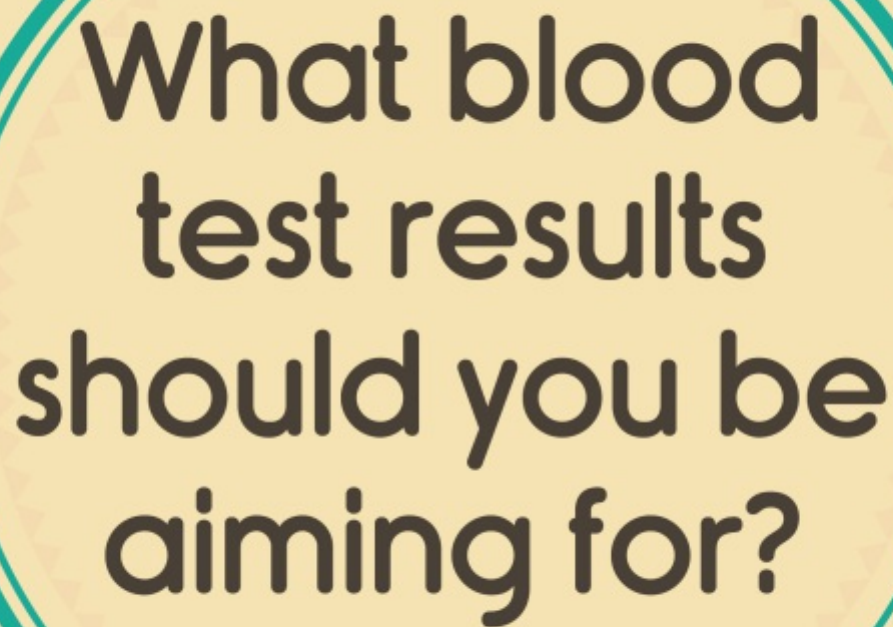

# YOU HAVE DIABETES. NO NEED TO PANIC!

A few alterations to your lifestyle can enable you to continue to lead a full, healthy life. All you need to do is keep your blood sugar level under control and avoid diabetes-related complications.

Here are some  
simple tips  
that can help you  
stay healthy.


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Want to tell us something? PatientsEngage would love to hear from you. If you have any suggestions or queries, feel free to get in touch at [patients.engage@patientsengage.com](mailto:patients.engage@patientsengage.com)



# What blood test results should you be aiming for?

Your blood test results help you understand your condition and decide on your best action plan.





## Fasting Plasma Glucose (FPG)

A blood test that is done first thing in the morning. You have to fast for eight hours before the test but can drink water. If your fasting blood glucose is 100 mg/dL – 125 mg/dL (5.6 – 6.9 mmol/L), you are considered prediabetic. If it is 126 mg/dL (7.0 mmol/L) or more in two or more tests, you are considered to have diabetes.



### YOUR AIM:

70-130mg/dL (3.9 – 7.2 mmol/L)  
before meals

## Oral Glucose Tolerance Test (OGTT)

This test checks your blood glucose level before and two hours after you are given a sweet drink, to understand how your body is processing glucose. If the blood glucose level is 140 mg/dL – 199 mg/dL (7.8 – 11 mmol/L), you are considered to be prediabetic. If it is greater than 200mg/dL (11.1 mmol/L), you are diagnosed to have diabetes.



### YOUR AIM:

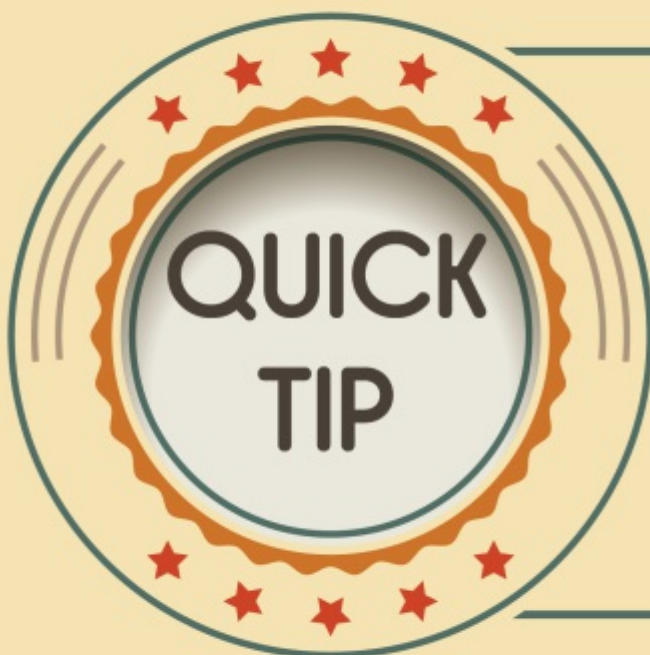
less than 180 mg/dL (10 mmol/L)  
two hours after starting your meal

## HbA1c

This test measures your average blood glucose levels over the last two to three months. A result of 5.7 – 6.4% indicates prediabetes, while 6.5% and above indicates diabetes.



**YOUR AIM:**  
less than 6.5%



Set your own blood sugar level goal after consulting your doctor. You may not reach these goals right away, but every bit of lowering helps.



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**HOW TO  
CONTROL  
BLOOD SUGAR  
LEVELS**

—◆◆◆—



To control your  
**blood sugar**  
you need to  
manage 3 things:

**DIET**

**EXERCISE**

**MEDICATION**

Checking your **blood sugar**  
level regularly is also  
important, so get a glucometer.



# ★ DIET ★

Contrary to what people believe, you don't have to give up all your favourite foods and feel deprived. You may have to eat some foods in moderation. It is very important to understand the impact that certain foods have on your blood sugar and make the necessary adjustments.

Start by using **THE DIABETIC PLATE**, recommended by the USDA. It offers a practical, visual guide to planning your meals.



★ To understand the My Plate method, ★  
you need to know the five food groups, namely:

1) Non-starchy vegetables (broccoli, cabbage, capsicum, gourd vegetables, leafy vegetables, okra, carrot, tomato, onion, etc.)



2) Starch (bread, roti, brown rice, whole wheat, potatoes, oats, barley, corn, bajra, jowar, etc.)



3) Lean proteins (soya, beans, pulses, eggs, meat, fish, skinless chicken, nuts, etc.)



4) Dairy and dairy products (milk, yoghurt, cottage cheese, etc.)



5) Fruits (apple, berries, melons, papaya, etc.)



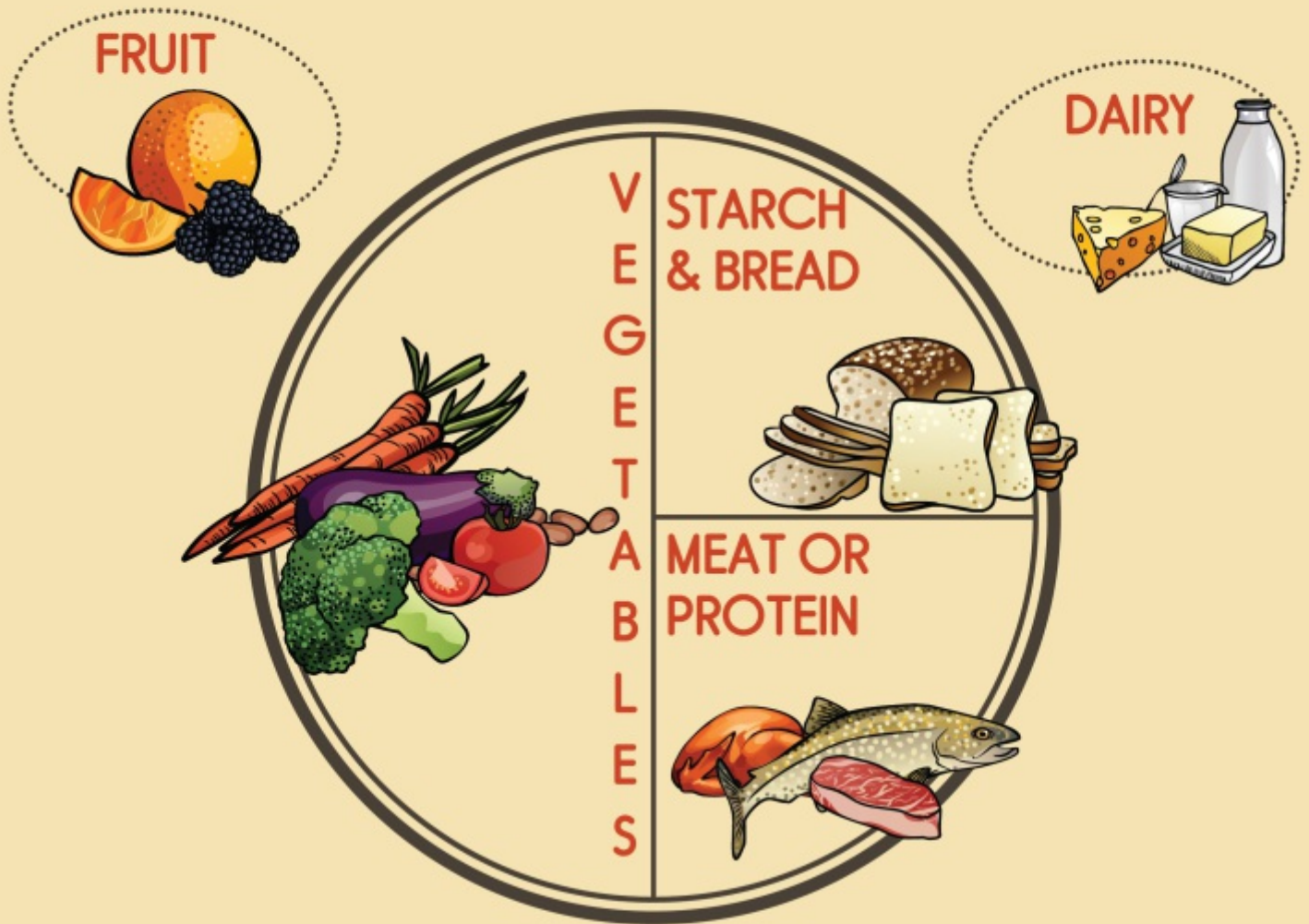
Oils and fats should be used in moderate amounts while cooking.



# HOW TO PUT TOGETHER A HEALTHY DIABETIC PLATE

The plate (6" or 9") needs to be sectioned as shown in the picture below with the different food groups in the right proportions. This is how your 'healthy plate' will look.





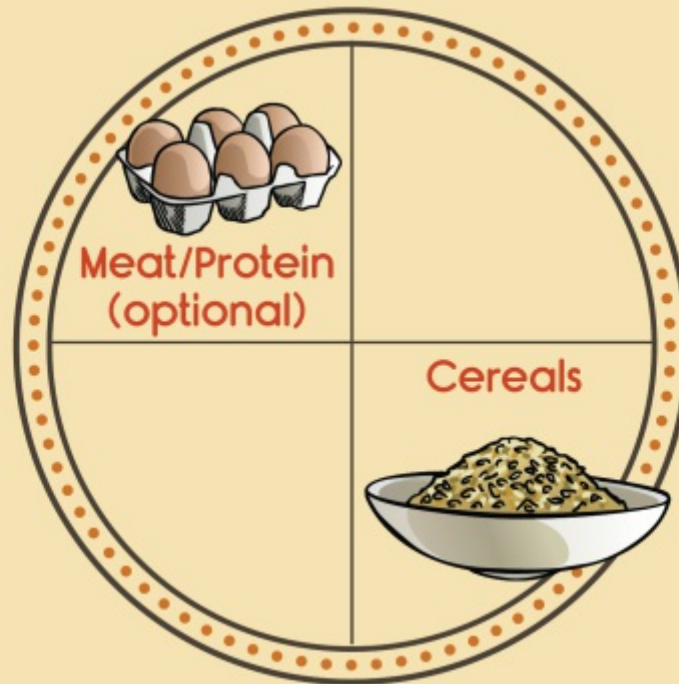
To plan meals, select foods from the five food groups mentioned above. Take a look at a few sample meals below, and then try planning your own. Use the plate graphic to visualise your meals.



It's always better to ask for a dietitian's advice to know how much you can eat from every food group for good glycaemic control.



# Breakfast



## Sample Menu

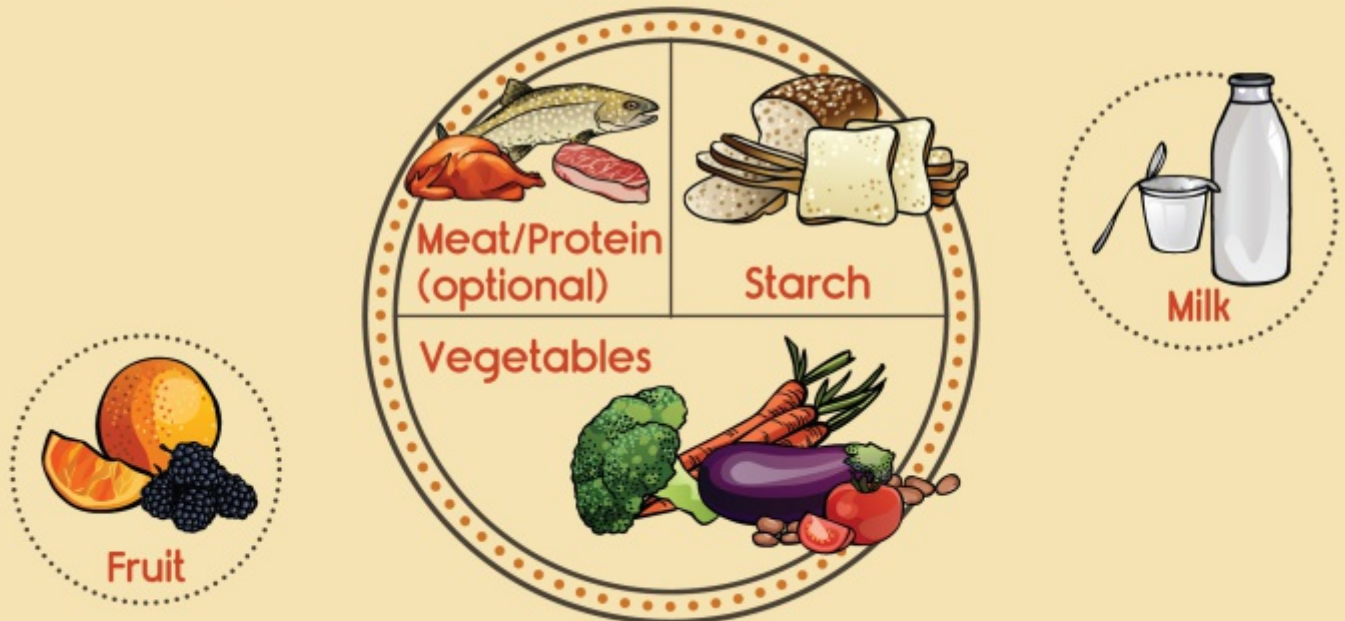
★ Starch: 1 whole grain bread or roti or 3 tbsp oats

★ Meat/Protein: Scrambled egg whites or ½ cup paneer

★ Fruit: 1 cup papaya or apple

★ Milk: 1 cup

# Lunch & Dinner



## Sample Menu

★ Starch: 1 roti and 1 cup brown rice

Protein: 1 cup dal or fish curry (1 palm – sized fish) ★

Vegetables: 1 cup salad and 1 cup mixed vegetable curry

★ Fruit: ½ cup pomegranate

Dairy: 1 cup yoghurt or raita ★

While using the plate method, do keep a check on portion control to prevent post meals hyperglycaemia.

**QUICK TIP**

Remember, when choosing starch and fruit sources, look out for high – fibre and low Glycaemic Index (GI) foods.



# WHAT IS GLYCAEMIC INDEX?

Glycaemic Index (GI) is the ability of a carbohydrate containing food to raise blood sugars after it is eaten. Foods are labeled as high GI (70 or greater), medium GI (56 – 69) or low GI (0 – 55) foods.



High GI foods get broken down into glucose and are absorbed rapidly, thereby immediately increasing blood sugars. This instant rise in blood sugars is then subjected to relatively rapid fall in blood glucose. Eating too many high GI foods may create cravings for more food soon after eating, which can trigger over-eating and weight gain.





Low GI foods are broken down slowly into glucose and cause a slower and more stable rise in blood glucose levels, thereby helping to maintain normal blood glucose levels.

For instance, polished white rice has a higher GI of 72, whereas brown rice (with husk) has a comparatively low GI of 55. Hence, meal planning with GI involves choosing foods that have a low or medium GI.

Food with high GI can be combined with food with low GI to help balance the meal. For example, to cut down on the blood sugars surge with white rice consumption, you can have it with low GI options like red beans curry and accompany it with a plain yoghurt or cucumber raita.

## ★ Some examples of high fibre low GI foods: ★

Oatmeal, brown rice, most varieties of parboiled rice, beans, almonds, peanuts, walnuts, chickpeas, oilseeds (sunflower, flax, pumpkin, poppy, sesame); most whole intact grains (wheat, bajra, couscous, quinoa, millets, oat, rye, rice, barley), buckwheat flour (kuttuatta), most vegetables, most fruits (apple, guava, berries, papaya etc).





# EXERCISE

An exercise regimen plays a key role in managing your blood sugar level. When you exercise:

Your cells use insulin more efficiently to take up the glucose (lowering blood sugar)

It triggers another response that enables the cells to take up glucose even without insulin. (Usually, insulin is required for muscles to take up glucose for energy)





It is important to exercise safely. A few points you need to consider before you get started:



Speak to your doctor – you can check some of the following:

- a) Is it safe for you to start exercising straight away?  
If your blood sugar level is very high, the doctor may recommend a graduated action plan.
- b) What range should your blood sugar reading be in before you head out to exercise?
- c) Does your medication/insulin dose need to be adjusted?





Choose an activity that raises your heart rate, like running or swimming. Do it every day for at least 30 minutes

Check your blood sugar before and after you exercise, to understand the activity's impact on your body

Exercise an hour or 90 minutes after eating so your blood sugar level does not drop (hypoglycaemia)

Always carry a snack in case your blood sugar level falls suddenly during exercise. Feeling irritable, lightheaded, weak or shaky may be a sign of hypoglycaemia

Drink plenty of water as dehydration can affect blood sugar





# MEDICATION

If the right diet and exercise fail to control your blood sugar level, your doctor may recommend medication. This may be oral tablets, insulin or a combination. You may be prescribed one of these oral medications:



### METFORMIN

First choice of treatment. Works by increasing the sensitivity of the body's tissues to insulin.

### SULFONYLUREAS

Helps the body to produce insulin. Eg: Glyburide, Glipizide & Glimepiride.

### MEGLITINIDES

Acts similar to Sulfonylureas but much faster. Eg: Repaglinide & Nateglinide.

### THIAZOLIDINEDIONES

Acts similar to Metformin but with more serious side effects. Eg: Rosiglitazone and Piaglitazone.

### DPP-4 INHIBITORS

Helps decrease blood sugar levels but with modest effect. Eg: Sitagliptin, Saxagliptin and Linagliptin.

### SGLT2 INHIBITORS

The newest drugs in the market. It prevents re-absorption of sugar by the kidneys through excretion of glucose via urine. Eg: Dapogliflozin and Canagliflozin.

### GLP-1 RECEPTOR AGONIST

Slows digestion but not very effective. Rarely prescribed. Eg: Exonatide and Liroglutide.

# FROM PILLS TO INSULIN

The transition from pills to insulin injections does not mean that your diabetes has worsened or your Type II diabetes has changed to Type I. It means that pills alone are not enough to control the blood sugar levels. If your blood glucose levels remain high after meals and if your A1C is not optimum, your doctor may wish to start you on insulin. Depending upon the blood tests the doctor can prescribe a pill – insulin combination or switch to insulin-only therapy.







## Types of Insulin

Insulin is categorised according to three parameters – a) how quickly they work, b) when they peak, and c) how long they last. Insulin is also available in different strengths. The most common is U – 100.

### Rapid-acting insulin

Starts working instantly. Peaks in an hour. Lasts for a couple of hours. Eg: Insulin glulisine (Apidra), insulin lispro (Humalog), and insulin aspart (NovoLog).

### Regular or short-acting insulin

Starts working in about 30 minutes. Peaks at 2–3 hours. Lasts for 3–6 hours. Eg: Humulin R, Novolin R.

### Intermediate-acting insulin

Takes 2–4 hours to work fully. Peaks at 4–12 hours. Lasts up to 18 hours. Eg: NPH (Humulin N, Novolin N).

### Long-acting insulin

No peak levels. Can work for an entire day. Eg: Insulin detemir (Levemir) and insulin glargine (Lantus).

You may need more than one type of insulin or to take it more than once a day. If needed, your doctor can prescribe other medications along with insulin.

## How & when to take insulin




Insulin injections are administered using either a syringe or an insulin pen. Most people need 2–4 injections a day.

Insulin is taken before meals. The time varies depending on the type of insulin. Discuss the different options with your doctor, like long-acting and rapid-acting insulin plan, using an insulin pen or switching to an insulin pump.

Eating at fixed times everyday also makes it easier to manage your blood glucose.

Keep insulin ready before meals to prevent hyperglycaemia. It's easier to keep blood glucose from going too high by having insulin in your body when you eat than to lower it later.





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# BLOOD GLUCOSE MONITORING

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Self-monitoring becomes an essential part of the transition to insulin to better regulate your insulin intake. This can be done at

home with a small handheld device called glucometer. Your doctor or nurse can train

you to use it. Continuous glucose monitoring device (attached to the body) is also available for patients who require a more timely supervision. The

HbA1c test is a blood test used to measure

blood glucose levels over the previous two to

three months. Your doctor may prescribe this from time to time.



★  
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Everyone can lead a  
full life with diabetes.

— You just need to —

1. EAT RIGHT
2. EXERCISE
3. TAKE YOUR  
MEDICATION.

★ A little mindfulness about  
your lifestyle will go a long  
way in keeping you healthy. ★