

# Diabetes: Just the Basics

## Newly Diagnosed Type 2 Diabetes

If you have recently been diagnosed with diabetes, you may be experiencing a range of emotions. You should know that **you are not alone**. Your healthcare team is here to work with you to provide education and support. By working together we can control your diabetes.

## Type 2 Diabetes

Diabetes is a condition in which the level of sugar in your blood is too high. Insulin helps your body manage your blood sugar. Too much sugar in the blood isn't good for your health. Most people with type 2 diabetes also have high cholesterol, high blood pressure, and are overweight. Treating these conditions is as important as managing blood sugar in type 2 diabetes.

When you have type 2 diabetes, your body does not make enough insulin or use it as well as it should. The blood sugar then builds up in the blood instead of going into the cells. This can lead to serious complications of the heart, eyes, kidneys and feet.

	Fasting Blood Sugar Levels for Diagnosis	A1C Range
Normal	<100 mg/dl	<5.7%
Pre-Diabetes	100-125 mg/dl	5.7%-6.4%
Diabetes	≥ 126 mg/dl	≥6.5%

Many people with type 2 diabetes can control blood sugar with a diet and exercise program. However, most people with type 2 diabetes will need to add pills or insulin to manage their blood sugar levels. Type 2 diabetes is usually found in older adults and is now being found in younger adults. Type 2 diabetes used to be called adult-onset diabetes. About 90% of all people with diabetes have type 2.

### Factors leading to Type 2 diabetes

- Being overweight
- Being inactive
- Family history of type 2 diabetes
- Having diabetes during pregnancy
- Ethnic background (People who are African-American, Asian, Portuguese, Hispanic and Native American have a higher risk of getting type 2 diabetes)

### Symptoms of Type 2 diabetes may include:

- Thirst
- Increase in urination (the amount of urine you pass and how often)
- Hunger
- Feeling tired
- Blurry vision

### Treatment of Type 2 diabetes

Controlling your blood sugar should help improve your overall health and well-being and prevent long-term complications.

- Lose weight (if overweight); *Even a 10-pound weight loss can help keep your diabetes in control.*
- Eat healthy

- Check your blood sugar as directed by your healthcare provider
- Be physically active
- Take medications, if prescribed by your healthcare provider
- If you smoke, stop!

### Self-Monitoring of Blood Sugar (glucose)

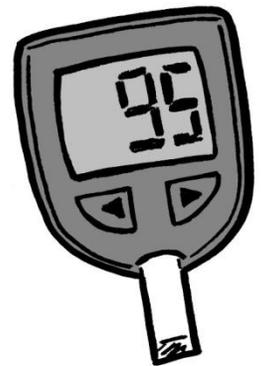
Keeping your blood sugar in control is an important part of keeping well when you have diabetes. Checking a drop of blood with a meter lets you know how much sugar is in your blood at the time that you check it. It will help you to see how your medicine, food and activity affect your blood sugar. You will be able to know if your blood sugar is too high or too low and treat the problem right away.

#### Things that make your blood sugar go up

- Too much food
- Not enough diabetes medicine
- Not enough activity
- Illness and stress

#### Things that make your blood sugar go down

- Not enough food
- Too much diabetes medicine
- More activity than usual



*Use caution when drinking alcohol because it may make your blood sugar go up or down.*

#### Times to check your blood sugar

There is no one plan for everyone when it comes to checking blood sugars. People taking insulin will need to monitor their blood sugar once to many times a day to adjust their doses safely and effectively. Other people may not need to check as often. *You should check your blood sugar on different days of the week and at different times of the day. Talk with your healthcare provider to decide when you should check your blood sugar and fill in the chart below.*

Days and Times I will check my blood sugar			
How many days a week should I check my blood sugar? _____			
What times should I check my blood sugar? (circle times below)			
Before breakfast	Before lunch	Before supper	Before bed
2 hours after breakfast	2 hours after lunch	2 hours after supper	2 – 3 am

You should also check your blood sugar before driving or using hazardous equipment if you take medicine that could cause hypoglycemia.

### Target blood sugar ranges

Your blood sugar is changing all through the day. It may be lower when you first get up and before you eat, but some people with type 2 diabetes have the highest blood sugar of the day early in the morning. It may be higher after you eat or when you are stressed. I would replace 'stressed' with 'sick'. Sometimes patients attribute high BGs to everyday stress and don't make changes to their diabetes regimen. *Talk with your healthcare provider about your target blood sugar ranges and write them in on the chart below.*

Time	Usual target for most people	My target (write yours here)
Before meals	80 - 120	
2 hours after start of meal	Less than 180	
Bed time	110 - 150	

### Watch for patterns

Write down your blood sugar readings on a sheet of paper or in a logbook. This will help you to watch for patterns in your blood sugar. Bring your readings to your medical appointments and review them with your provider. Once you know the pattern of your blood sugar readings, your provider may recommend that you check less often.



### Tips for getting a good blood sample

- Wash your hands with warm water and dry with a clean towel  
Warm your fingers in warm water if they are cold.
- Hold your hands downward to increase blood flow to your fingers
- "Milk" your finger to increase blood flow to the tip
- Shake your hands quickly
- Prick on the side of your finger (not the end) as you won't feel it as much.

### Possible reasons for errors on blood glucose meters

- Too little blood on strip
- Storing strips outside of the original container or storing the container in a steamy place (like a bathroom)
- The meter is too hot or too cold
- Strips are out of date.

## Common Medications to Treat Type 2 Diabetes

Diabetes pills are not for everyone with diabetes. People with type 1 diabetes must use insulin and many people with type 2 diabetes take insulin to treat their diabetes. However, many people with type 2 diabetes can manage their diabetes with pills, or a combination pills and insulin.

It is important to know the name of your diabetes medicine, how it is taken, the reasons for taking it, and possible side effects. Diabetes pills work in different ways and may be used together. The goal is to help control your blood sugar.

### Some pills:

- Stop your liver from releasing too much sugar
- Help your pancreas to make more insulin
- Help your body better use your insulin
- Slow the digestion of some carbohydrates

### When should I call my healthcare provider?

- If you have very low or very high blood sugars
- If you are concerned about any new side effects
- If you stop taking your pills for any reason

### What may affect how my pills work?

- Alcohol
- Other illnesses or worsening kidney or liver problems
- Over-the-counter medications
- Herbal preparations

## Oral Medications (Pills) for Type 2 Diabetes

There are many categories of medications to lower glucose and several combinations of these categories for people with type 2 diabetes. Each has a different way of helping you control your diabetes. Your healthcare provider will decide which pills are best for you.

Class	Generic or brand name	Where they work	How they control your blood sugar	Side effects/ Comments
Alpha-glucosidase Inhibitors	Acarbose/ Precose	Intestine	Slow the digestion of starches. Post-meal blood sugars are lowered.	Bloating, gas, & diarrhea. Usually decrease after first 6 months. Take with first bite of food.
Biguanides	Metformin/ Glucophage	Liver and Muscle cells	Stop the liver from releasing too much glucose. Also makes muscle cells more sensitive to insulin. Pre-meal blood sugars are lowered.	Bloating decreased appetite, nausea, and diarrhea. Usually disappear after a few weeks. Take with meals.
Dipeptidyl peptidase-4 (DPP-4) inhibitors	Sitagliptin/Januvia Saxagliptin/Onglyza Linagliptin/Trajenta Others	In the bloodstream	Prevent the breakdown of GLP-1, a hormone that increases insulin release from the pancreas	Rarely, headache or upper respiratory infection. May cause pancreatitis.
Glucagon-like peptide-1 (GLP-1) agonist	Exenatide/Byetta Liraglutide/Victoza Exenatide ER/Bydureon Others	Pancreas, liver, intestine	Given by injection. Stop the liver from releasing too much glucose; slows digestion, increases insulin release when glucose is high	Nausea and vomiting in 15-40%. May cause pancreatitis. Some preparations increased a hormone associated with a rare form of pancreatic cancer in animal testing.

Class	Generic or brand name	Where they work	How they control your blood sugar	Side effects/ Comments
Meglitinides	Starlix/ Prandin	Pancreas	Help pancreas release more insulin. Post-meal blood sugars are lowered.	Low blood sugar. Take up to 30 minutes before each meal. Don't take if you are skipping a meal.
Sodium-glucose co-transporter 2 (SGLT2) inhibitors	Canagliflozin /Invokana Dapagliflozin/Farxiga Empagliflozin/Jardiance	Kidney	Increases glucose in the urine, allowing the body to discard extra glucose	Frequent urination, genital and urinary yeast and bacterial infections
Sulfonylureas	Glyburide/ Glipizide/ Glimepiride	Pancreas	Help pancreas to release more insulin.	Low blood sugar and weight gain. Take with meals. Don't take if you are skipping a meal.
Thiazolidinediones (TZDs)	Avandia/ Actos	Muscle cells	Make muscle and liver cells sensitive to insulin. Fasting blood sugars are lowered.	Weight gain and swelling. Takes 4-6 weeks to see an effect on your blood sugar.
Combination Pills	Glucovance Avandamet Metaglip Actoplus met Avandaryl Dueact Janumet			

### Steps To Better Health

#### Type 2 Diabetes

- Learn all that you can about diabetes
- Be physically active

#### Self-Monitoring of Blood Sugar

- Keep the test strips in their container and in a dry place
- Use the side of your finger, not the tip (*the side hurts less!*)

#### Pills

- Take your pills at the right time every day
- Keep a list of your medications in one place and keep it up to date
- Check your list of medications with your healthcare provider at every visit